

REVISION OF THE GENUS *THYANTA* STÅL, 1862
(HETEROPTERA: PENTATOMIDAE)
II. NORTH AMERICA, CENTRAL AMERICA,
AND THE WEST INDIES

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Abstract.—The species of the pentatomid genus *Thyanta* Stål occurring north of South America are revised. All northern hemisphere species belong to the subgenera *Thyanta* and *Argosoma* Rider. Diagnoses are given for the genus, subgenera, and the 14 included species and subspecies. The subspecies *accerra* McAtee is transferred from *T. pallidovirens* (Stål) to *T. custator* (Fabricius). The following new synonymy is recognized (junior synonym in parentheses): *T. custator accerra* McAtee, 1919 (= *T. pallidovirens spinosa* Ruckes, 1957a), *T. pallidovirens* (Stål, 1859) (= *T. pallidovirens setosa* Ruckes, 1957a), and *T. maculata* (Fabricius, 1775) (= *T. casta* Stål, 1862b). Lectotype designations are made for *Cimex maculatus* Fabricius, *Pentatoma obsoleta* Dallas, *P. pallidovirens*, *T. casta*, and *T. pseudocasta* Blatchley. *Thyanta planifrons* Ruckes is reported from the United States for the first time. A key is provided for the subgenera, species, and subspecies that occur north of South America.

The genus *Thyanta* is restricted to the western hemisphere and is one of several fairly large genera in the nominate tribe and subfamily of the Pentatomidae. Historically, identifications in this genus have been difficult. In fact, Jensen-Haarup (1928) commented “The species are very variable, but at the same time inter se much similar both as to colour and sculpture, and also regarding the genital segments; a strict separation of most of the species is, therefore, rather difficult, if not rich and fresh materials of species and specimens are at hand.” There has been no recent treatment of the entire genus, the last being that of Jensen-Haarup in 1928. Malloch (1919), Blatchley (1926), and Torre-Bueno (1939) all reviewed portions of the genus, but their works have become outdated largely due to the addition of many new species and subspecies (Ruckes, 1952, 1956, 1957a, b, c; Rider and Chapin, 1991).

The genus *Thyanta* is one of a group of pentatomine genera characterized by the lack of a spine or tubercle on the third (second visible) abdominal sternite. Rolston and McDonald (1984) provided a key to separate those genera occurring in the Western Hemisphere north of South America. Because there are many species and many of them are difficult to distinguish, the genus has been divided into two groups according to geographical regions. The present paper reviews those species known to occur north of South America. The South American species of *Thyanta* were recently revised by Rider and Chapin (1991).

Care should be maintained when using the key to species. It is important to have fresh, mature specimens. After death, specimens tend to become greasy and discolored, making their determinations rather tentative. In the key, when certain characters

are described as black or piceous, the true structural color is black, not just darkened due to discoloration. Teneral specimens and specimens of brown forms often have darkened areas that may be misleading when working through the key. Most characters of the genitalia can be seen without dissecting the specimen; however, accurate determinations may require some dissection. In many cases there are no reliable characters to separate females. The only way to identify females in these instances is by association with males or sometimes by geographical distribution.

When label data is cited in the text, each letter in parentheses represents a different label with (a) being closest to the specimen. Museum acronyms used in the text are defined in the acknowledgements. All measurements are in millimeters. Measurements in parentheses are of the holotype.

Thyanta Stål 1862

Thyanta Stål, 1862a:58; Stål, 1867:529; Stål, 1872:34–35; Distant, 1880:65; Summers, 1898:45; Kirkaldy, 1909:94; Van Duzee, 1917:51; Blatchley, 1926:104, 112–113; Jensen-Haarup, 1928:185–186; Furth, 1974:21–22; Froeschner, 1981:71; McPherson, 1982:48, 76–77; Rolston and McDonald, 1984:74, 76; Froeschner, 1988: 592.

Type species. *Cimex perditor* F., 1794 (by subsequent designation, Kirkaldy, 1909: XXX).

Diagnosis. Third (second visible) abdominal sternite lacking medial spine or tubercle. Each ostiolar ruga sulcate proximally, reaching at least three-fourths distance from mesial margin of ostiole to lateral margin of metapleuron. Bucculae evanescent or arcuately truncate at posterior terminations. Juga and tylus usually subequal in length; rostrum reaching at least to metacoxae. Femora unarmed; superior surface of each tibia usually sulcate. Width of scutellum at distal end of frena two-fifths or less basal scutellar width. Each paramere narrowly rounded to acute apically, lacking denticles, usually lacking lateral lobe, rarely with spinose lateral lobe.

Comments. The genus *Thyanta* is closely related to two other pentatomine genera, *Cyptocephala* Berg and *Tepa* Rolston and McDonald, from which it can be separated reliably only by differences in the male genitalia. In all northern hemisphere species of *Thyanta*, the head of each paramere lacks a lateral lobe. In *Cyptocephala* and *Tepa*, the parameres have well-developed lateral lobes. *Cyptocephala* further differs from *Tepa* and *Thyanta* by having minute denticles between the lateral lobe and the apex of the paramere. The parameres of species of *Tepa* and *Thyanta* lack denticles.

Jensen-Haarup (1928) described the subgenus *Parathyanta* within *Thyanta*. Rolston and McDonald (1984) placed *Parathyanta* in the synonymy of *Cyptocephala*. At the same time, they transferred 4 species from *Thyanta* to *Cyptocephala* and 6 species from *Thyanta* to *Tepa*. The species of both *Cyptocephala* and *Tepa* have been reviewed recently (Rolston, 1972, 1986; Rider, 1986a).

The genus *Thyanta* is divided into three subgenera: *Argosoma* Rider, *Phacidium* Breddin, and *Thyanta*. All 8 species of the subgenus *Phacidium* are restricted to South America and have been treated in an earlier paper (Rider and Chapin, 1991). *Argosoma* contains 20 species, 6 of which are known to occur outside South America. The nominate subgenus contains 9 species of which 7 are known to occur in the area covered by the present paper.

KEY TO SUBGENERA OF *THYANTA* STÅL

1. Dorsal surface relatively shiny, glossy; punctures relatively large, sparse; pygophoral opening relatively large; posteroventral surface of pygophore produced into small, blunt, chin-like protuberance; ectal surface of each paramere concave; spermathecal bulb globose *Argosoma* Rider
- Dorsal surface appearing matte, not shiny; punctures relatively small, dense; pygophoral opening relatively small, posteroventral surface of pygophore not produced into blunt, chin-like protuberance; ectal surface of each paramere convex; spermathecal bulb globose or digitiform 2
- 2(1). Pygophoral opening subtended by semicircular or rectangular impression; posterior margin of pygophore with medially emarginate production in middle; theca large, subtriangular, with small protuberance on each side near lateral dorsal margin; proximal end of sclerotized rod cone-shaped; spermathecal bulb digitiform *Thyanta* Stål
- Posteroventral surface of pygophore smoothly arcuate or with distinct sulcus, not with semicircular or rectangular impression; posterior margin of pygophore nearly transverse, lacking medial production; theca reniform, lacking protuberances on lateral dorsal margin; proximal end of sclerotized rod may be slightly swollen, but not cone-shaped; spermathecal bulb globose *Phacidium* Breddin

KEY TO SPECIES OF *THYANTA* OCCURRING NORTH OF SOUTH AMERICA

1. Anterolateral margins of pronotum piceous; mesial angle of each pronotal cicatrice black 2
- Anterolateral margins of pronotum not piceous; coloration of mesial angle of each pronotal cicatrice variable, often immaculate 3
- 2(1). Piceous markings along anterolateral pronotal margins relatively broad, usually easily visible from dorsal view; pygophoral opening subtended by semicircular impression; general form relatively broad (eastern U.S.) *calceata* (Say)
- Piceous markings along anterolateral pronotal margins relatively narrow, not easily visible from dorsal view; pygophoral opening subtended by rectangular impression; general form relatively narrow (coastal plain from central Louisiana to Florida to New York) *custator custator* (Fabricius)
- 3(1). Humeral angles rounded to angulate, but never spinose 4
- Humeral angles distinctly spinose 6
- 4(3). Dorsal punctuation minute, dense, surface appearing matte; pygophoral opening subtended by rectangular impression; ectal surface of each paramere convex, lacking dorsomedial concave surface (Fig. 34); spermathecal bulb digitiform (Fig. 47) 5
- Dorsal punctuation coarse, sparse, surface glossy; posteroventral surface of pygophore produced into blunt chin-like protuberance; each paramere with dorsomedial surface concave (Fig. 126); spermathecal bulb globose (Fig. 136) 10
- 5(4). Postspiracular black spot usually present on each side of each abdominal sternite and usually larger in diameter than adjacent spiracle; if absent or smaller than spiracle, then humeral angles usually angulate (eastern U.S.) *custator accerra* McAtee (part)
- Postspiracular area of each abdominal sternite immaculate; or, if black spot present, then spot is usually smaller in diameter than adjacent spiracle; humeral angles rounded, never angulate (western U.S.) *pallidovirens* (Stål)
- 6(3). Mesial angle of each pronotal cicatrice often marked with black; posterolateral angle of each abdominal sternite usually black; pygophoral opening subtended by

- semicircular impression, posterior margin with distinct medial slit (Fig. 71) 7
- Without above black markings; pygophoral opening subtended by rectangular impression, posterior margin straight, concave, or sinuous, without medial slit (Fig. 41) (southwestern U.S.; Mexico; Guatemala) *custator accerra* McAtee (part)
- 7(6). Complete or partial transhumeral reddish band usually present; both anterolateral and posterolateral angles of each abdominal sternite usually piceous 8
- Reddish band between humeral angles usually absent; each abdominal sternite with anterolateral angle immaculate, each posterolateral angle with at most a small black spot 9
- 8(7). Humeral angles directed anterolaterad, usually approaching a 45-degree angle with longitudinal axis of body (Fig. 63) (southern U.S. to northern Argentina) *perditor* (Fabricius)
- Humeral angles directed primarily laterad and only slightly anterad (Fig. 78) (Baja California, Mexico) *spectabilis* Ruckes
- 9(7). Yellow anterolateral pronotal margins contrasting with rest of pronotum; pronotal cicatrices immaculate; usually smaller than 9.0 mm long by 6.0 mm wide (Cuba; British West Indies) *cubensis* Barber & Bruner
- Anterolateral pronotal margins concolorous with rest of pronotum; mesial angle of each pronotal cicatrice usually black; usually larger than 9.0 mm long by 6.0 mm wide (Revillagigedo Islands, Mexico) *serratulata* Ruckes
- 10(4). Southwestern U.S.; Mexico; Central America 11
- Southern Florida; West Indies 12
- 11(10). Ostiolar canal narrowed at middle, becoming slightly wider towards apex (Fig. 137); posterolateral angle of each abdominal sternite usually immaculate; apex of each paramere nearly spinose in medial view (Fig. 124) (southwestern U.S.; northwestern Mexico) *planifrons* Ruckes
- Ostiolar canal acuminate apically; posterolateral angle of each abdominal sternite piceous, sometimes only a minute portion of the tip piceous; apex of each paramere narrowly rounded in medial view (Fig. 140) (southern Texas; Mexico; Central America) *maculata* (Fabricius)
- 12(10). Each paramere in medial view with apex straight or bending slightly ventrad (Fig. 155), concave surface oriented more mediad than dorsad; posteromesial angles of basal plates distinctly excavated, resulting concavity broadly U-shaped (Fig. 165) (Trinidad and Tobago; Venezuela) *vadosa* Rider
- Each paramere in medial view with apex curving slightly dorsad, orientation of dorsomedial concave surface variable; posteromesial angles of basal plates rounded or weakly emarginate 13
- 13(12). Concave surface of each paramere oriented more mediad than dorsad (southern Florida) *pseudocasta* Blatchley
- Concave surface of each paramere oriented more dorsad than mediad 14
- 14(13). Apex of each paramere rounded in ectal view (Fig. 186); spermathecal duct with relatively small amount of swelling and coiling below proximal flange (Fig. 197) (Greater Antilles) *obsoleta* (Dallas)
- Apex of each paramere spinose in ectal view (Fig. 201); spermathecal duct with large amount of swelling and coiling below proximal flange, swelling carrot-shaped (Fig. 212) (Lesser Antilles; northern South America) *testacea* (Dallas)

Subgenus *Thyanta* Stål

Diagnosis. Punctures minute, dense. Posterior terminations of bucculae evanescent. Anterolateral pronotal margins straight to concave, sometimes marked with piceous;

humeral angles rounded to angulate, often spinose; pronotal cicatrices sometimes marked with piceous in mesial angles. Ostiolar canals acuminate apically. Superior surface of each tibia sulcate.

Posterior margins of basal plates sinuous, posteromesial angles entire (Fig. 13). Distal end of sclerotized rod cone-shaped (Fig. 14); spermathecal bulb digitiform; cylindrical structure below proximal flange (Fig. 15). Pygophoral opening small, subtended on posteroventral surface by a rectangular or semicircular impression; posterior margin of pygophore straight to concave in caudal view, with medially incised protuberance in middle (Fig. 9). Each paramere F-shaped, obtuse protuberance on shaft usually prominent, apex spinose, ectal surface convex (Fig. 3), roughened spiculate area on lateral surface linear (Fig. 5). Each lateral conjunctival lobe of aedeagus with single spinose diverticulum (Fig. 6); dorsomedial conjunctival lobe usually well-developed (Fig. 7), theca large; subtriangular in lateral view, with dorsolateral protuberance on each side near caudal limit (Fig. 8); medial penial lobes and penisfilum moderate in size.

Comments. Species of the subgenus *Thyanta* have the pygophoral opening subtended by a semicircular or rectangular impression, and the posterior margin is distinctly emarginate medially. Species of *Phacidium* have the posteroventral surface of the pygophore arcuately rounded or sulcate, and the posterior margin is not emarginate medially. The posteroventral surface of the pygophore in species of *Argosoma* is produced into a blunt, chin-like protuberance. The ectal surface of each paramere is concave in *Argosoma* and convex in both *Phacidium* and *Thyanta*.

The female genitalia are also useful in separating species of *Thyanta* and *Phacidium*. In *Thyanta*, the distal end of the sclerotized rod is cone-shaped, and the spermathecal bulb is digitiform. In *Phacidium*, the distal end of the sclerotized rod is swollen subapically and narrowed distally, and the spermathecal bulb is globose. The female genitalia of both *Phacidium* and *Argosoma* are very similar, but females can usually be separated by dorsal punctuation which is relatively dense in *Phacidium* and less dense and more coarse in *Argosoma*.

Thyanta (Thyanta) calceata (Say)

Figs. 1–15, Map 1

Pentatoma calceata Say, 1831:8.

Thyanta custator (of authors, not Fabricius): Herrich-Schäffer, 1844:96, 106, fig. 771; Uhler, 1886:7 (part); Lethierry and Severin, 1893:148 (part); Kirkaldy, 1909:94 (part); Banks, 1910:90 (part).

Thyanta custator calceata: Uhler, 1872:399.

Thyanta calceata: Barber, 1911:108–111; Van Duzee, 1917:53; Hart, 1919:184, 217, fig. 70; Blatchley, 1926:113, 117–118; Torre-Bueno, 1939:231; Ruckes, 1957a:21–22; Hoffman, 1971:44; Furth, 1974:22, 23–24; McPherson, 1982:76–77, 79–80, fig. 72; Rolston and McDonald, 1984:figs. 23, 27; Froeschner, 1988:593.

Diagnosis. General form broad, ovate. Transhumeral rubiginous band usually present; vertex of head and tylus often reddish.

Lateral jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 2). Humeral angles rounded to angulate; anterolateral pronotal margins piceous, straight to weakly concave in dorsal view (Fig. 1); mesial angle of each pronotal

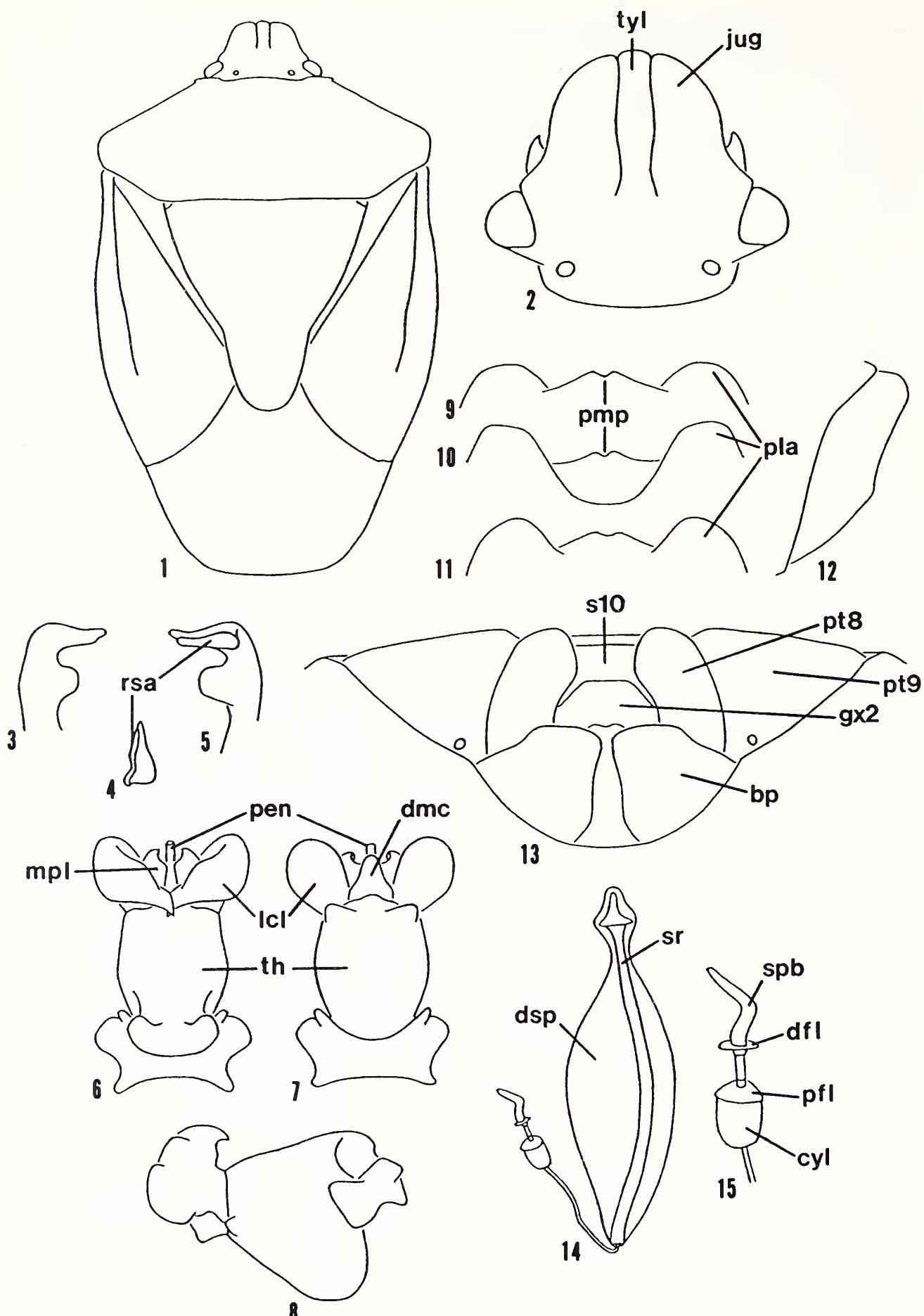
cicatrice piceous. Each abdominal sternite with postspiracular spot on each side and posterolateral angles piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angles rounded (Fig. 13). Posterolateral angles of pygophore continuing onto posteroventral surface as vague carinae, forming semi-circular impression in caudoventral view. Posterior margin of pygophore produced posterodorsad, in ventral and dorsal views appearing convex with small, medial, V-shaped emargination (Figs. 10, 11); slightly concave in lateral view (Fig. 12).

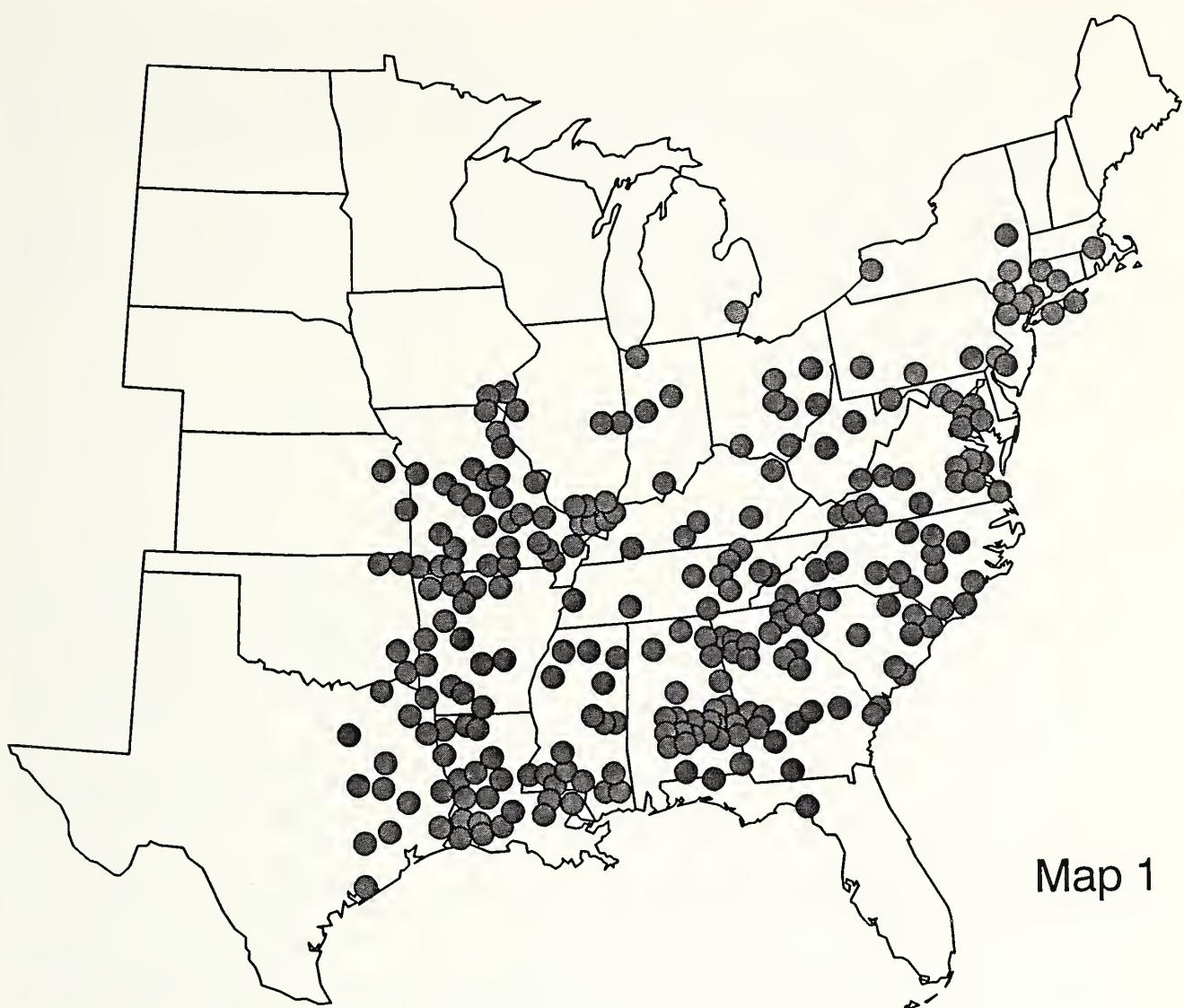
Types. The type specimen of *Pentatoma calceata* is apparently no longer in existence, and Say's original description (1831) will fit equally well for either *T. calceata* or *T. custator*. Previous usage has, however, fixed both species, and therefore designation of a neotype is not necessary.

Distribution. Eastern U.S. (Map 1).

Specimens examined. 1,105 specimens collected during every months of the year; deposited in AMNH, ARH, AUA, CAS, CNC, CUC, DAR, DBT, EGER, FMNH, FSCA, INHS, ISU, LRH, LSU, MSU, MSUE, NCSU, NDSF, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UIM, UMC, USNM, VPI, WSU. UNITED STATES: Alabama: Autauga, Barbour, Bibb, Cherokee, Chilton, Clay, Cleburne, Coosa, Covington, Dallas, De Kalb, Elmore, Houston, Lee, Lowndes, Macon, Madison, Perry, Randolph, Shelby, Tallapoosa, Wilcox, Winston. Arkansas: Benton, Boone, Carroll, Grant, Hempstead, Hot Spring, Logan, Marion, Nevada, Newton, Polk, Sevier, Union, Yell. Connecticut: Litchfield, New Haven. District of Columbia. Florida: Collier, Holmes, Taylor. Georgia: Bartow, Bibb, Bryan, Chatham, Clark, Cobb, De Kalb, Floyd, Franklin, Fulton, Habersham, Hall, Harris, Johnson, Madison, Marion, Oconee, Oglethorpe, Paulding, Peach, Rabun, Sumter, Talbot, Thomas. Illinois: Champaign, Franklin, Hancock, Hardin, Jackson, Johnson, Pope, Union, Vermilion, Williamson. Indiana: Crawford, Howard, Porter, Tippecanoe. Iowa: Henry, Van Buren. Kansas: Bourbon, Douglas. Kentucky: Barren, Carter, Green, Laurel, Trigg. Louisiana: Allen, Acadia, Beauregard, Caddo, Calcasieu, Claiborne, De Soto, East Baton Rouge, East Feliciana, Grant, Jefferson Davis, Natchitoches, Rapides, Sabine, St. Landry, Tangipahoa, Vernon, Webster, West Feliciana, Winn. Maryland: Allegany, Anne Arundel, Calvert, Charles, Frederick, Montgomery, Prince Georges. Massachusetts: Bristol. Michigan: Wayne. Mississippi: Adams, Amite, Copiah, Forrest, Franklin, Jones, Lauderdale, Leake, Lincoln, Monroe, Newton, Oktibeha, Panola, Perry, Pontotoc, Tallahatchie, Walthal. Missouri: Barry, Benton, Boone, Butler, Callaway, Camden, Carter, Crawford, Dade, Douglas, Greene, Harrison, Jackson, Laclede, Marion, McDonald, Montgomery, Osage, Ozark, Pettis, Phelps, Ralls, Randolph, St. Charles, St. Francois, Scotland, Scott, Shannon, Stone, Taney, Wright. New Jersey: Bergen, Gloucester, Morris. New York: Albany, Erie, Nassau, Orange, Suffolk, Ulster, Westchester. North Carolina: Buncombe, Columbus, Craven, Cumberland, Currituck, Harnett, Johnston, McDowell, Macon, Montgomery, Moore, Orange, Pender, Scotland, Wake. Ohio: Adams, Fairfield, Gallia, Hocking, Licking, Pickaway, Tuscarawas, Washington. Oklahoma: Craig, Latimer, McCurtain, Ottawa. Pennsylvania: Franklin, Lancaster, Philadelphia, Westmorland. South Carolina: Abbeville, Charleston, Chesterfield, Dorchester, Florence, Greenville, Horry, Lexington, Oconee, Pickens, Spartanburg, Williamsburg. Tennessee: Cumberland, Decatur, De Kalb, Fentress, Knox, Lauderdale, Marion, Rhea, Scott, Sevier. Texas: Anderson,



Figs. 1-15. *T. calceata*. 1. Habitus. 2. Head. 3-5. Right paramere. 3. Medial view. 4. Ectal view. 5. Lateral view. 6-8. Theca and related structures. 6. Ventral view. 7. Dorsal view. 8. Lateral view. 9-12. Pygophore. 9. Caudal view. 10. Ventral view. 11. Dorsal view. 12. Lateral



Map 1

Map 1. *T. calceata*.

Angelina, Aransas, Bowie, Brazos, Camp, Cherokee, Dallas, Harris, Harrison, Jasper, Lamar, Sabine, Smith, Walker. Virginia: Charolette, Chesterfield, Clifton Forge City, Fairfax, Falls Church, Floyd, Gloucester, Hanover, King & Queen, Montgomery, Nelson, New Kent, Norfolk, Pulaski, Virginia Beach, Wythe. West Virginia: Monroe, Roane, Upshur.

Comments. *Thyanta calceata* can be separated from all other congeners except *T. custator custator* by the distinctly black anterolateral pronotal margins. It can be reliably distinguished from *T. c. custator* only by the male genitalia. In *T. calceata*, the pygophoral opening is subtended by a semicircular impression; this impression

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view. 13. Genital plates, caudoventral view. 14. Spermatheca. 15. Spermathecal pump. Symbols: bp, basal plate; cyl, cylindrical structure below proximal flange; dfl, distal flange; dmc, dorso-medial conjunctival lobe; dsp, dilation of spermatheca; gx2, second gonacoxae; jug, juga; lcl, lateral conjunctival lobe; mpl, median penial lobe; pen, penisfilum; pfl, proximal flange; pla, posterolateral angle of pygophore; pmp, posterior margin of pygophore; pt8, eighth paratergite; pt9, ninth paratergite; rsa, roughened spiculate area on lateral surface of paramere; spb, spermathecal bulb; sr, sclerotized rod; s10, tenth sternite; th, theca; tyl, tylus.

is rectangular in *T. c. custator*. Specimens of *T. calceata* are generally shorter and broader than specimens of *T. c. custator*, and the black markings on the anterolateral pronotal margins are usually darker and more extensive in *T. calceata*. These last two characters, however, may be apparent only when a series of specimens of each species can be compared.

Most species of *Thyanta* occur in two color forms, a green form in the warmer months and a brown form in the cooler months. This is particularly well documented in *T. calceata* (McPherson, 1977a, b, 1978a, b; McPherson and Paskewitz, 1982; McPherson et al., 1983).

Thyanta (Thyanta) custator custator (Fabricius)

Figs. 16–30, Map 2

Cimex custator Fabricius, 1803:164.

Pentatoma custator: Dallas, 1851:251; Walker, 1867:288.

Thyanta custator: Stål, 1862a:58; Stål, 1872:34–35 (part); Uhler, 1872:399 (part); Uhler, 1876:289–290 (part); Uhler, 1886:7 (part); Van Duzee, 1904:53 (part); Kirkaldy, 1909:94 (part); Van Duzee, 1909:155–156; Banks, 1910:90 (part); Barber, 1911:108–111 (part); Barber, 1914:523; Van Duzee, 1917:52 (part); Blatchley, 1926:113, 115–116 (part); Torre-Bueno, 1939:231 (part); Ruckes, 1957a:1–2, 4–13, 20, 22, fig. 1; Ueshima, 1963:149, 152–153; Hoffman, 1971:44–45; Furth, 1974:22, 23, fig. 45; McPherson, 1982:76–77, 80–81, fig. 73; Rolston and McDonald, 1984:figs. 24, 28; Froeschner, 1988:593.

Thyanta accerra (of authors, not McAtee): Blatchley, 1926:114, 118.

Thyanta casta (of authors, not Stål): Blatchley, 1926:113, 116–117.

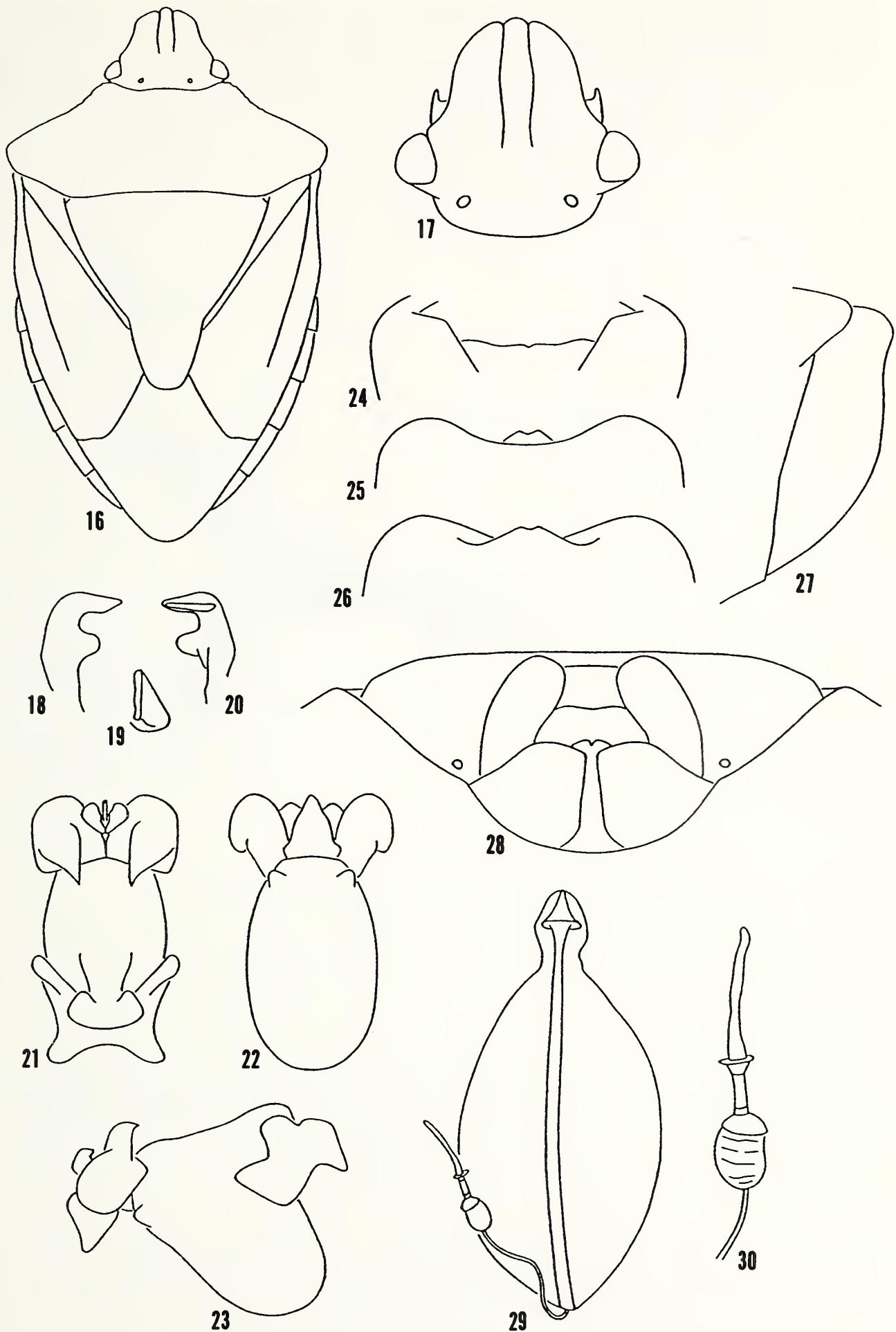
Diagnosis. Dorsal surface green to brown, often with varying amount of reddish coloration between humeral angles, sometimes extending along anterolateral pronotal margins and onto basal margin of each corium.

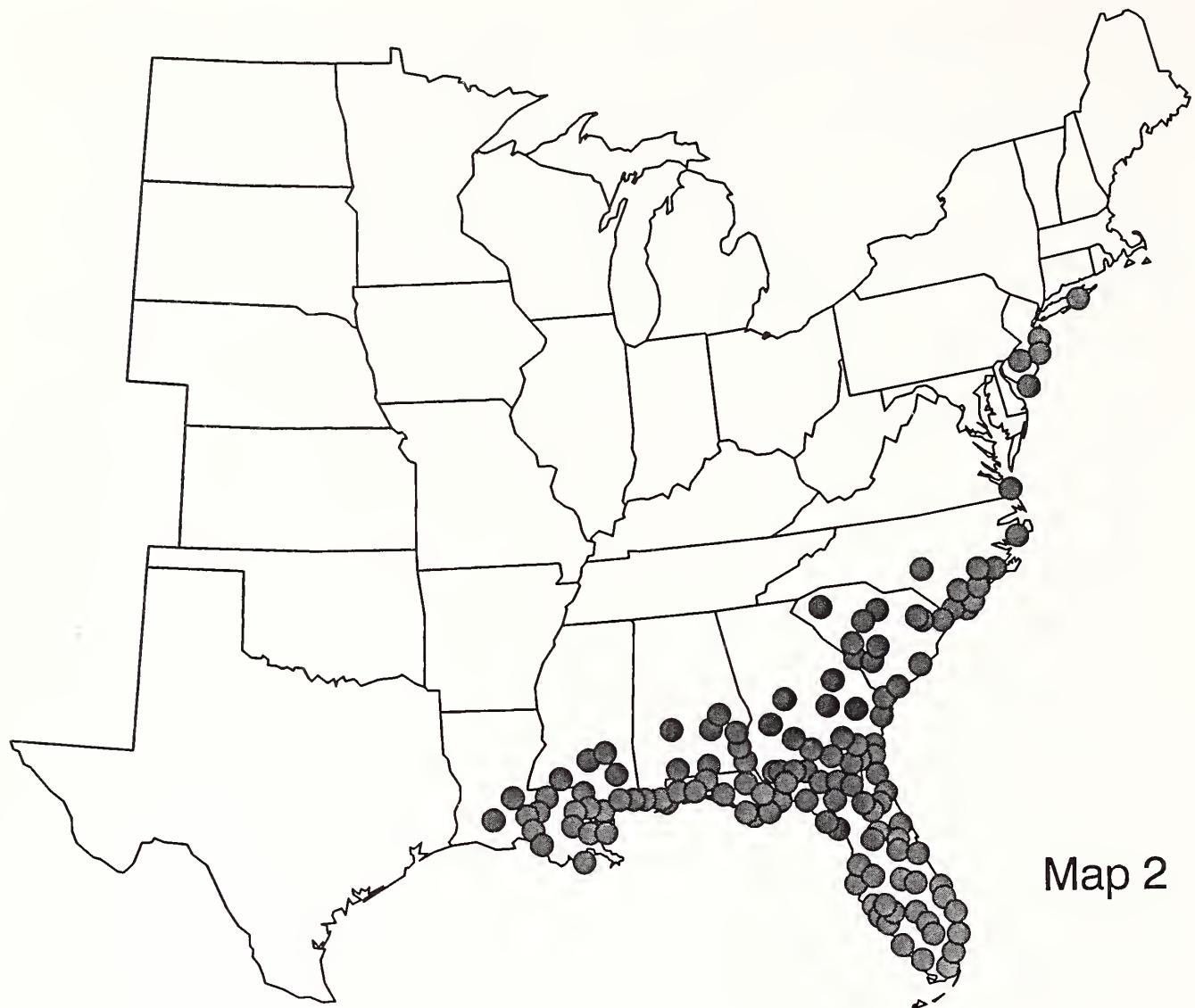
Lateral jugal margins sinuous, not parallel (Fig. 17). Anterolateral margins of pronotum and mesial angle of each pronotal cicatrice piceous. Anterolateral pronotal margins slightly concave in dorsal view; humeral angles rounded to angulate, never spinose (Fig. 16). Ventral surface yellow-green to brown, posterolateral angles of abdominal sternites black. Each abdominal sternite with postspiracular black spot on each side.

Mesial margins of basal plates nearly straight in caudoventral view; posterior margins sinuous; posteromesial angles narrowly rounded (Fig. 28). Each posterolateral angle of pygophore continuing onto posteroventral surface as vague carina, forming rectangular impression; mesial portion of posterior margin slightly convex with small, V-shaped, emargination in middle in both ventral and dorsal views (Figs. 25, 26); pygophore slightly concave in lateral view (Fig. 27).

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Figs. 16–30. *T. custator custator*. 16. Habitus. 17. Head. 18–20. Right paramere. 18. Medial view. 19. Ectal view. 20. Lateral view. 21–23. Theca and related structures. 21. Ventral view. 22. Dorsal view. 23. Lateral view. 24–27. Pygophore. 24. Caudal view. 25. Ventral view. 26. Dorsal view. 27. Lateral view. 28. Genital plates, caudoventral view. 29. Spermatheca. 30. Spermathecal pump.





Map 2. *T. custator custator*.

Types. The type specimen of *Cimex custator* is apparently no longer in existence (Zimsen, 1964), and the original description does not adequately fix the species. Fabricius' description will fit either *T. custator custator* and *T. calceata* equally well. Previous usage, however, has fixed both species, and therefore the designation of a neotype is not necessary.

Distribution. Coastal plain from central Louisiana to Florida to New York, and the Bahama Islands (Map 2).

Specimens examined. 1,243 specimens collected during every month of the year; deposited in AMNH, ARH, AUA, BMNH, CAS, CNC, CUC, DAR, DBT, FMNH, FSCA, INHS, ISU, LHR, LSU, MSU, MSUE, NCSU, OSUC, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UIM, UMC, USNM, UUSL, WSU. UNITED STATES: Alabama: Baldwin, Barbour, Covington, Dallas, Escambia, Henry, Houston, Lee, Macon, Madison, Mobile. Florida: Alachua, Bay, Brevard, Broward, Charlotte, Clay, Collier, Columbia, Dade, De Soto, Dixie, Duvall, Franklin, Gadsden, Glades, Gulf, Hamilton, Hardee, Hendry, Highlands, Hillsborough, Holmes, Indian River, Jackson, Lake, Lee, Leon, Levy, Liberty, Madison, Manatee, Marion, Martin, Nassau, Okaloosa, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Putnam, St. Johns, St. Lucie, Santa Rosa, Sarasota, Seminole, Sumter, Suwanee, Taylor, Volusia,

Wakulla, Washington, Georgia: Berrien, Brantley, Brooks, Charlton, Chatham, Clinch, Decatur, Evans, Glynn, Grady, Jefferson, McIntosh, Peach, Pierce, Sumter, Thomas, Tifton, Toombs, Ware. Louisiana: *Acadia, Ascension, Avoyelles, East Baton Rouge, East Feliciana, Iberville, Jefferson, Livingston, Orleans, St. Charles, St. James, St. Mary, St. Tammany, Tangipahoa, Washington, West Baton Rouge.* Mississippi: *Covington, Forrest, Hancock, Harrison, Jackson, Jefferson Davis, Pike.* New Jersey: *Burlington, Cape May, Monmouth, Ocean.* New York: *Suffolk.* North Carolina: *Bladen, Brunswick, Columbus, Duplin, Hyde, Moore, New Hanover, Onslow, Pender.* South Carolina: *Aiken, Bamberg, Barnwell, Beaufort, Charleston, Florence, Greenville, Horry, Jasper, Kershaw, Marion, Orangeburg, Richland.* Virginia: *Norfolk.* Bahama Islands: *South Bimini Island.*

Comments. This species has been the subject of much confusion in the past. At one time the name *T. custator* was applied to nearly all specimens from the entire United States. Ruckes (1957a) showed that the true *custator* form is confined to the coastal plain from Louisiana to Florida to New York, but he felt that it was a separate species distinct from the *accerra* form. The two forms have virtually identical genitalia. They cross-breed readily in the laboratory; and where their distributions overlap, specimens intermediate between the two forms are found fairly frequently. The two forms have a very narrow overlap in their respective ranges, however, and specimens taken from outside the area of overlap are usually easily identified. These two forms probably are more correctly considered subspecies.

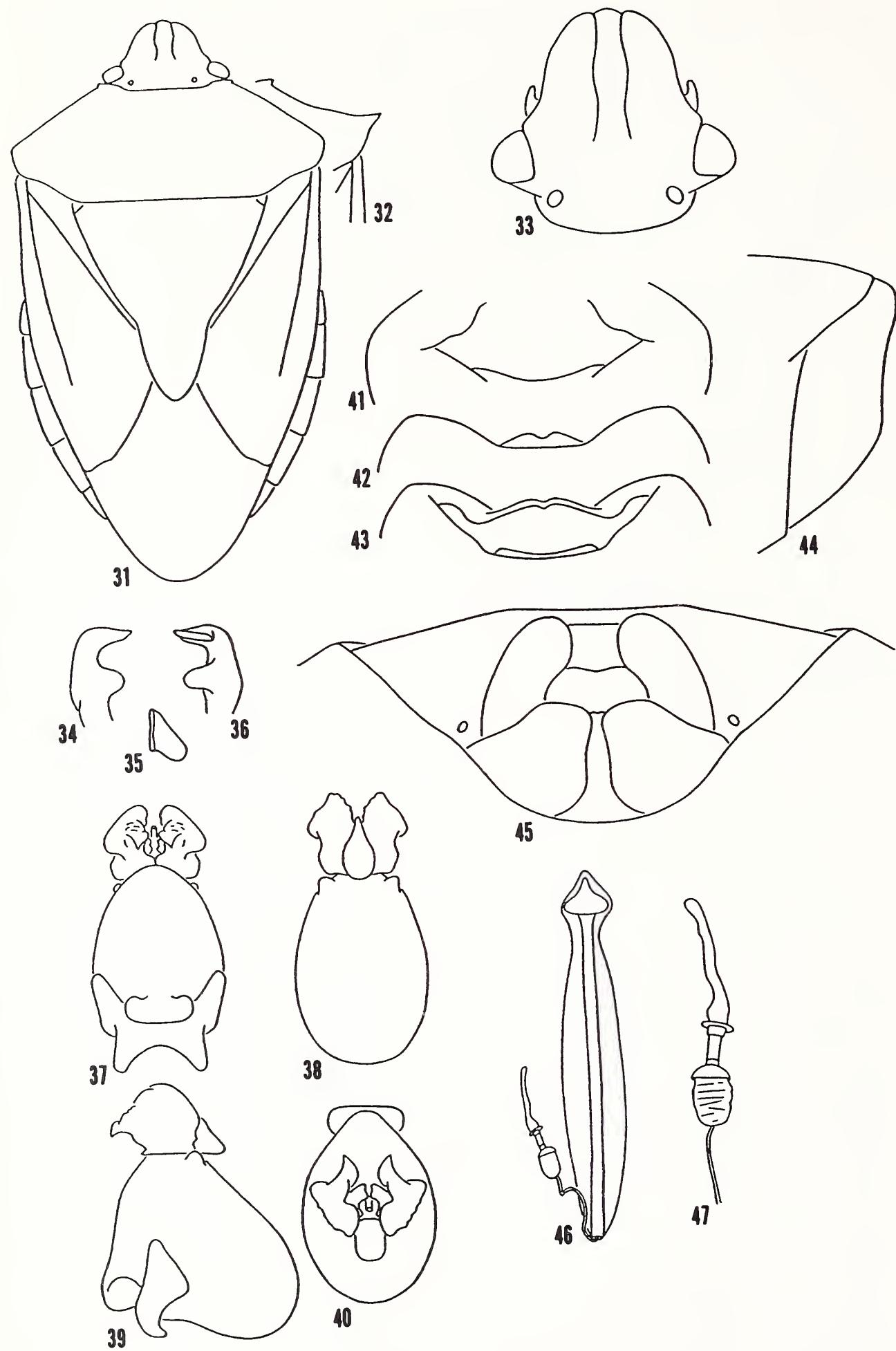
Thyanta c. custator and *T. calceata* are the only two species in the genus with distinctly black anterolateral pronotal margins. They can be separated reliably from each other only by the characters of the male genitalia. The pygophoral opening in *T. c. custator* is subtended by a rectangular impression, while this impression is semicircular in *T. calceata*. When large series are present, some separation can be made based on the general shape of the body: *T. custator* is slightly longer and narrower than *T. calceata*. Fortunately, there is very little overlap in their distributions.

Thyanta (Thyanta) custator accerra McAtee
Figs. 31–47, Map 3

Thyanta custator var. *accerra* McAtee, 1919:16.

Thyanta custator: Stål, 1872:34–35 (part); Uhler, 1872:399 (part); Uhler, 1876:289–290 (part); Uhler, 1877:404; Popenoe, 1884:62; Uhler, 1886:7 (part); Lethierry and Severin, 1893:148 (part); Osborn, 1894:121; Uhler, 1894a:230–231; Van Duzee, 1894:171; Blatchley, 1895:269; Gillette and Baker, 1895:16; Van Duzee, 1904:53 (part); Barber, 1906:260; Kirkaldy, 1909:94 (part); Banks, 1910:90 (part); Barber, 1911:108–111 (part); Zimmer, 1912:232–233; Torre-Bueno, 1914:92; Van Duzee, 1914:4–5 (part); Van Duzee, 1917:52 (part); Hart, 1919:184–185; Malloch, 1919:217, fig. 75; Blatchley, 1926:113, 115–116 (part); Torre-Bueno, 1939:231 (part).

Thyanta perditor (of authors, not Fabricius): Uhler, 1872:399 (part); Uhler, 1876:289 (part); Uhler, 1877:404 (part); Popenoe, 1884:62; Uhler, 1886:7; Osborn, 1894:121; Uhler, 1894a:230 (part); Gillette and Baker, 1895:16; Van Duzee, 1904:52–53 (part); Kirkaldy, 1909:95 (part); Zimmer, 1911:232 (part); Torre-Bueno, 1914:92; Malloch, 1919:217, fig. 79; Blatchley, 1926:113, 114–115, fig. 24 (part).



Thyanta pallido-virens (of authors, not Stål): Banks, 1910:90 (part); Rolston and McDonald, 1984:fig. 31.

Thyanta accerra: Deay and Gould, 1935:305–306; Torre-Bueno, 1939:233; Harris, 1943:150; Ward et al., 1977:40; McPherson, 1979b:94; McPherson, 1982:77, 78–79, fig. 167; Froeschner, 1988:592–593.

Thyanta pallidovirens accerra: Ruckes, 1957a:14–15, 19–22; Ueshima, 1963:152–153; Hoffman, 1971:44–45; Furth, 1974:22–23; McPherson, 1979a:83–84.

Thyanta pallidovirens spinosa Ruckes, 1957a:18–19; Ward et al. 1977:40; Froeschner, 1988:593. **NEW SYNONYMY.**

Diagnosis. Green to dark brown, sometimes with varying amounts of reddish coloration between humeral angles, often extending onto basal margin of each corium.

Lateral jugal margins sinuous, not parallel (Fig. 33). Humeral angles rounded to angulate (spinose in desert areas of southwestern United States and Mexico); anterolateral margins of pronotum straight to concave in dorsal view (Figs. 31, 32), stramineous to green, sometimes reddish, but never piceous; pronotal cicatrices immaculate. Each abdominal sternite with postspiracular black spot present on each side (eastern U.S.) or absent (western U.S.). Posterolateral angles of abdominal sternites immaculate or minutely marked with piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angles rounded (Fig. 45). Posterolateral angles of pygophore continuing onto posteroventral surface of pygophore as vague carinae, forming rectangular impression; mesial portion of posterior margin of pygophore convex with slight mesial emargination in ventral and dorsal views (Figs. 42, 43); pygophore only slightly concave in lateral view (Fig. 44).

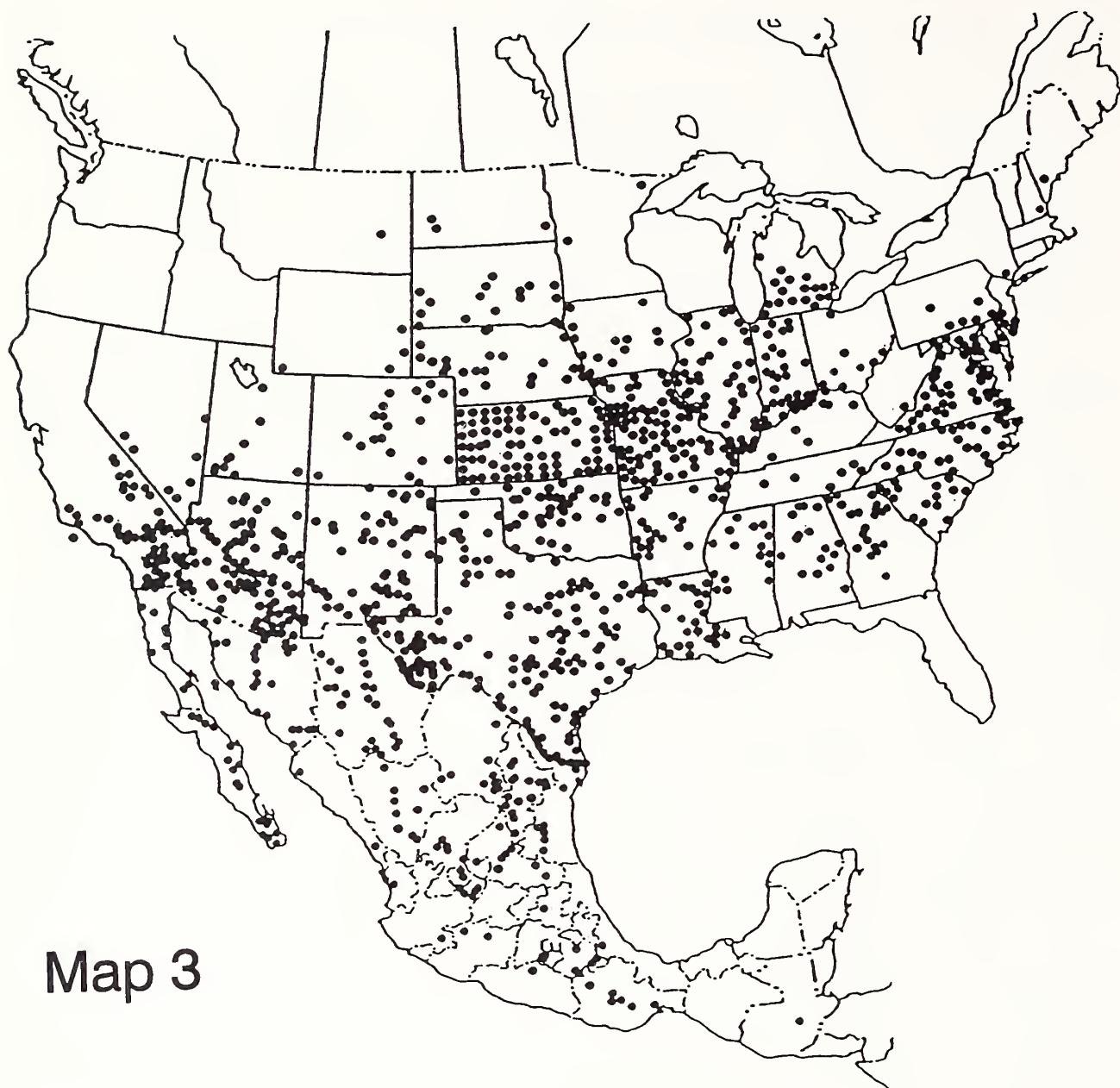
Types. McAtee (1919) described *accerra* as a variety of *T. custator*; he examined four specimens: three from Barachias, Alabama, and one from San Antonio, Texas. Blatchley (1926) elevated *accerra* to full species rank, but his concept of the species was incorrect. Blatchley's *T. accerra* was actually *T. c. custator*. The type specimens, which are housed in the U.S. National Museum of Natural History (Washington, D.C.), were examined.

Ruckes (1957a) described *T. pallidovirens spinosa* from 75♂♂ and 51♀♀ specimens. The holotype, which was examined, is from Patagonia, Santa Cruz Co., Arizona, and is deposited in the American Museum of Natural History (New York).

Distribution. Eastern two-thirds of U.S. west to Montana, Nevada, and southern California; Mexico; and Guatemala (Map 3).

Specimens examined. 8,677 specimens collected during every month of the year; deposited in AMNH, ARH, ASUT, AUA, BMNH, CAS, CNC, CUC, DAR, DBT, EGER, ENGL, FMNH, FSCA, INHS, ISU, LACM, LHR, LSU, MSU, MSUB, MSUE, NCSU, NDSF, NMSU, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UAT,

←
Figs. 31–47. *T. custator accerra*. 31. Habitus. 32. Variation in humeral angle. 33. Head. 34–36. Right paramere. 34. Medial view. 35. Ectal view. 36. Lateral view. 37–40. Theca and related structures. 37. Ventral view. 38. Dorsal view. 39. Lateral view. 40. Ectal view. 41–44. Pygophore. 41. Caudal view. 42. Ventral view. 43. Dorsal view. 44. Lateral view. 45. Genital plates, caudoventral view. 46. Spermatheca. 47. Spermathecal pump.



Map 3

Map 3. *T. custator accerra*.

UCB, UCR, UCS, UGA, UIM, UMAA, UMC, UNAM, UNL, USNM, UUSL, VPI, WSU. UNITED STATES: Alabama: *Chambers, Dallas, De Kalb, Elmore, Green, Henry, Jefferson, Lee, Macon, Madison, Montgomery, Morgan, St. Clair, Tallapoosa*. Arizona: *Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma*. Arkansas: *Benton, Boone, Conway, Graighead, Faulkner, Garland, Hempstead, Hot Spring, Howard, Lawrence, Lincoln, Little River, Logan, Mississippi, Montgomery, Newton, Pike, Polk, Pulaski, Washington, Yell*. California: *Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, San Diego, Santa Barbara, Ventura*. Colorado: *Boulder, Chafee, Clear Creek, Douglas, El Paso, Jefferson, Gunnison, Larimer, Las Animas, Lincoln, Logan, Montezuma, Morgan, Otero, Prowers, Pueblo, Teller, Washington, Yuma*. Delaware: Kent. District of Columbia. Florida: *Highlands*. Georgia: *Bartow, Clarke, Crawford, Dade, Decatur, Fulton, Habersham, Henry, Lamar, Macon, Madison, Morgan, Oconee, Oglethorpe, Peach, Spalding, Talbot, Twiggs, Whitfield, Wilkes, Worth*. Hawaii: *Honolulu*. Illi-

nois: Adams, Alexander, Cass, Champaign, Clay, Coles, Cook, Cumberland, Edgar, Effingham, Grundy, Hancock, Hardin, Henry, Jackson, Jo Daviess, Johnson, Kankakee, Macon, Macoupin, Madison, Marion, Marshall, Mason, Massac, McDonough, McHenry, Menard, Morgan, Ogle, Peoria, Piatt, Pope, Pulaski, St. Clair, Scott, Union, Vermilion, Wabash, Warren, Washington, White, Will, Williamson. Indiana: Cass, Clark, Dearborn, Floyd, Greene, Harrison, Howard, Jackson, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lagrange, Lake, Lawrence, Marion, Morgan, Noble, Owen, Parke, Perry, Posey, Putnam, St. Joseph, Starke, Switzerland, Tippecanoe, Vanderburgh, Washington, Wayne. Iowa: Audubon, Boone, Floyd, Fremont, Harrison, Johnson, Linn, Lyon, Monona, Polk, Story, Union, Woodbury. Kansas: Allen, Anderson, Atchison, Barbor, Bourbon, Chautauqua, Cherokee, Cheyenne, Clark, Comanche, Decatur, Dickenson, Doniphan, Douglas, Ellis, Ellsworth, Finney, Ford, Geary, Gove, Graham, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Hodgeman, Johnson, Kearny, Kingman, Kiowa, Labette, Lane, Leavenworth, Linn, Logan, Meade, Miami, Mitchell, Montgomery, Morton, Neosho, Norton, Osborne, Ottawa, Pawnee, Phillips, Pottawatomie, Pratt, Rawlins, Reno, Riley, Rooks, Rush, Russell, Scott, Sedgwick, Seward, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Wabaunsee, Wallace, Washington, Wichita, Wilson. Kentucky: Campbell, Christian, Fayette, Green, Hardin, Jefferson, Oldham, Rowan, Scott, Trimble. Louisiana: Acadia, Avoyelles, Bossier, Caddo, Calcasieu, Cameron, Catahoula, Claiborne, Concordia, East Baton Rouge, East Feliciana, Evangeline, Franklin, Grant, Iberville, Jefferson Davis, Livingston, Madison, Natchitoches, Ouachita, Rapides, Richland, St. Landry, Tensas, Vermilion, Webster, West Baton Rouge. Maine: Oxford. Maryland: Allegany, Anne Arundel, Baltimore, Calvert, Frederick, Montgomery, Prince Georges, Queen Annes, Talbot, Washington. Michigan: Barry, Berrien, Calhoun, Ingham, Ionia, Jackson, Kalamazoo, Kent, Lenawee, Livingston, Mason, Montcalm, Oakland, Shiawassee, Van Buren, Washtenaw, Wayne. Minnesota: Grant, St. Louis. Mississippi: Bolivar, Clay, Grenada, Hinds, Issaquena, Lauderdale, Lee, Lowndes, Marshall, Monroe, Noxubee, Oktibbeha, Panola, Pontotoc, Warren, Yazoo. Missouri: Atchison, Audrain, Barry, Barton, Benton, Boone, Buchanan, Caldwell, Callaway, Camden, Cape Girardeau, Carroll, Carter, Cedar, Chariton, Clark, Clay, Clinton, Cole, Cooper, Crawford, Dade, Dallas, Douglas, Dunklin, Franklin, Gasconade, Gentry, Greene, Grundy, Henry, Howard, Howell, Jackson, Jasper, Johnson, Lafayette, Lawrence, Lewis, Lincoln, Livingston, Madison, Maries, Marion, Miller, Mississippi, Moniteau, Montgomery, Morgan, New Madrid, Newton, Nodaway, Oregon, Osage, Pemiscot, Pettis, Phelps, Pike, Platte, Polk, Putnam, Ralls, Rankin, Ray, Reynolds, St. Charles, Ste. Genevieve, St. Louis, Saline, Scott, Shannon, Stoddard, Stone, Sullivan, Taney, Vernon, Warren, Washington, Wright. Montana: Custer. Nebraska: Adams, Cass, Chase, Cherry, Cheyenne, Custer, Frontier, Garden, Hall, Keith, Lancaster, Lincoln, Morrill, Nance, Otoe, Scotts Bluff, Sioux, Thomas, Thurston. Nevada: Clark, Esmeralda, Lincoln, Mineral, White Pine. New Hampshire: Rockingham. New Jersey: Atlantic, Burlington, Cape May, Cumberland, Gloucester, Salem. New Mexico: Bernalillo, Catron, Chaves, Cibola, Colfax, De Baca, Dona Ana, Eddy, Grant, Guadalupe, Hidalgo, Lincoln, Luna, McKinley, Otero, Quay, Rio Arriba, Roosevelt, Sandoval, San Miguel, Santa Fe, Torrance, Union, Valencia. New York: Orange. North Carolina: Bertie, Bladen, Caldwell, Chowan, Cleveland, Craven, Dare, Duplin, Edgecombe, Granville, Iredell, Johnston, McDowell, Mecklenberg, Montgomery, Moore,

Pasquotauk, Pender, Person, Rowan, Scotland, Vance, Wake, Warren, Washington, Wayne. North Dakota: *Cass, Hettinger, Stark.* Ohio: *Adams, Athens, Clinton, Franklin, Hamilton, Lawrence, Lucas, Monroe, Pickaway, Sandusky, Trumbull, Washington.* Oklahoma: *Alfalfa, Beckham, Caddo, Canadian, Carter, Cleveland, Comanche, Custer, Garfield, Grant, Harper, Jackson, Kay, Kingfisher, Lincoln, Logan, Mayes, McIntosh, Noble, Oklahoma, Osage, Pawnee, Payne, Sequoyah, Stephens, Texas, Tulsa, Wagoner, Woods, Woodward.* Pennsylvania: *Adams, Berks, Bucks, Centre, Franklin, Lancaster.* South Carolina: *Abbeville, Allendale, Anderson, Barnwell, Charleston, Chesterfield, Florence, Horry, Laurens, Lee, Marlboro, Oconee, Richland, Spartanburg, Sumter.* South Dakota: *Beadle, Bennett, Brookings, Brule, Buffalo, Clay, Custer, Fall River, Jones, Lawrence, Minnehaha, Pennington, Stanley, Sully, Tripp, Union.* Tennessee: *Benton, Cooke, Davidson, Hamilton, Knox, Roane, Sevier.* Texas: *Anderson, Aransas, Atascosa, Bailey, Bandera, Bastrop, Bee, Bell, Bexar, Bosque, Brazos, Brewster, Burleson, Burnet, Caldwell, Cameron, Camp, Collin, Colorado, Comal, Comanche, Coryell, Crockett, Crosby, Culberson, Dallas, Deaf Smith, Denton, Dimmit, Donley, Duval, Eastland, El Paso, Erath, Fayette, Flatonia, Floyd, Frio, Galveston, Gillespie, Gonzales, Gray, Guadalupe, Hale, Harris, Hays, Hemphill, Hudspeth, Hill, Houston, Howard, Jackson, Jeff Davis, Jim Hogg, Jim Wells, Kaufman, Kendall, Kennedy, Kerr, Kimble, King, Kinney, Kleberg, Knox, Leon, Live Oak, Llano, Lubbock, Lynn, Madison, Marion, Maverick, McLennon, Medina, Milam, Montague, Moore, Motley, Nueces, Oldham, Palo Pinto, Parker, Pecos, Potter, Presidio, Randall, Real, Reeves, Robertson, Runnels, San Patricio, Shelby, Smith, Starr, Sutton, Swisher, Tarrant, Taylor, Terrell, Travis, Upshur, Uvalde, Val Verde, Victoria, Walker, Ward, Webb, Wichita, Willbarger, Willacy, Williamson, Wise, Zapata.* Utah: *Iron, Juab, Kane, Piute, Salt Lake, Sanpete, Sevier, Washington.* Virginia: *Accomack, Albemarle, Appamattox, Arlington, Augusta, Bedford, Buckingham, Campbell, Caroline, Carroll, Charlotte, Charlottesville City, Chesterfield, Clifton Forge City, Frederick, Hampton, James City, King George, King William, Loudoun, Montgomery, Nelson, New Kent, Newport News City, Norfolk City, Patrick, Pittsylvania, Petersburg City, Prince Edward, Richmond City, Roanoke, Rockbridge, Rockingham, Staunton City, Suffolk, Virginia Beach City, Westmorland, Winchester City, Wythe.* West Virginia: *Monroe, Morgan.* Wisconsin. Wyoming: *Goshen, Laramie, Niobrara, Uinta.*

MÉXICO: *Aguascalientes: Aguascalientes; Arroyo San Pedro, 38 mi N Aguascalientes.* *Baja California Norte: Bahía de los Angeles; Canyon del Tajo; Diablo Dry Lake, San Felipe Valley; Ensenada; Gonzaga Bay; Guadelupe Canyon; 4 mi SW La Zopopita; L Cantillas Canyon; 60 mi S Mexicali; Mission San Borja; Persebu; 13 mi S Puertocitos; 24 mi N Punta Prieta; 9 mi SE Rancho Laguna Chapola; 7 mi NE Ranch Rosarito; San Felipe; 15 mi S San Felipe; 21 km S San Quintin.* *Baja California Sur: Bahía Concepción; 40 mi S El Arco Mine; La Paz; 7 mi SW La Paz; 25 mi W La Paz; Las Tinajitas; Loreto; 10.3 mi SW Los Mendanos; 8 mi SW Mission San Javier; 15 mi N San Ignacio; San José de Comondu; 4 mi W San José del Cabo; 5 mi SE Santa Rosalía; 10 mi W Santa Rosalía; Santiago; 1 mi E Todos Santos; 4 mi N Todos Santos; 30 mi E V. Insurgentes; 45.5 mi E V. Insurgentes.* *Chiapas: Cintalpa; Comitán.* *Chihuahua: Ciudad Camargo; 20 mi SW Ciudad Camargo; 25 mi SW Ciudad Camargo; Catarinas; Chihuahua; 3 mi NW Chihuahua; 16 mi SE Chihuahua; 46 mi N Chihuahua; 1.1 mi S Colonel Alvaro Obregon; Ciudad Delicias; 3 mi SE*

Ciudad Delicias; 10 mi S Ciudad Delicias; El Herradero; Gallego; 8 mi S Gallego; 10 mi W Gallego; Garcia; Hidalgo del Parral; 8 mi NE Hidalgo del Parral; 25 mi W Hidalgo del Parral; 44 mi S Hidalgo del Parral; Huejotitlan; 6 mi WSW Jiménez; 10 mi N Jiménez; 24 mi N Jiménez; La Bufa; 11.1 km S RR at La Junta; Madera; Marqueño; Matachic; 6 mi NE Meoquí; Moctezuma; Nuevo Casas Grandes; 43 mi SE Nuevo Casas Grandes; 45 mi NW Nuevo Casas Grandes; 2 km W Oginaga, Río Conchos; 7 mi E Pedernales; Salaices; Samalayuca; San José Babicora; Santa Barbara; 63 mi W Santa Barbara; Santa Clara; Santa Clara Canyon, 5 mi W Parrita; Valle de Olivos; Valle de Zaragoza; 23 mi N V. Ahumada; 15 mi S V. Matamoras. *Coahuila*: 10 mi S Allende; 10 mi S Ciudad Acuña; Arroyo de la Zorra; 20 mi SE Arteaga; Boquillas del Carmen; 14.3 mi S Castaños; Guadalupe; 12 mi N Hermanas; La Gloria, S of Monclova; Nueva Rosita; Saltillo; 1 mi E Saltillo; 1 mi SE Saltillo; 4 mi S Saltillo; 6 mi NE Saltillo; 7 mi SSW Saltillo; 12.4 mi S Saltillo; 15 mi N Saltillo; 15 mi S Saltillo; 16 mi SE Saltillo; 17 mi SE Saltillo; 20 mi SE Saltillo; 29 mi SE Saltillo; 39 mi W Saltillo; 66 km S Saltillo; 5 km N San Esteban; San Jose de la Niña; San Pedro de las Colonias; 12 mi SE San Pedro de las Colonias; Serranas del Burro; Torreón; 22 mi N Zaragoza. *Durango*: 8 mi S Canutillo; 30 mi N Cuencamé; 14 mi S Donata Guerra; Durango; 11 mi W Durango; 20 mi W Durango; 25 mi S Durango; 69 mi N Durango; Encino; Guadalupe Victoria; La Loma; 2 mi S Menores de Arriba; Navajos, 20 mi E El Salto; Nombre de Dios; 18 mi SE Nombre de Dios; Pedricena; 3 mi NW Pedricena; Rodeo; San Juan del Río; Santa Lucia; 5 mi NE Sauz. *Guanajuato*: León. *Guerrero*: Iguala. *Hidalgo*: Tasquillo. *Jalisco*: 2 mi S Ciudad Guzmán; Lagos de Moreno; 5.6 mi NE Lagos de Moreno; 13 mi SW Lagos de Moreno; San Juan de los Lagos; 1 mi NE V. Hidalgo. *Michoacán*: 10.3 mi W Morelia; Zamora. *Morelos*: Ruinas Xochicalco; Tepoztlán. *Nayarit*: San Blas. *Nuevo León*: Apodaca; Aramberri; 3 mi E Galeana; Hacienda Vista Hermosa, V. Santiago; 9 mi W Iturbide; Linares; 10 mi S Linares; 15 mi W Linares; 16 mi S Linares; 1.7 mi S Montemorelos; 15 mi SE Montemorelos; Monterrey; 4 mi S Monterrey; 5 mi S Monterrey; 6 mi S Monterrey; 10 mi W Monterrey; Paso Mamulique; Peña Nevada Zaragoza; Pesqueria; 10 mi N Providencia; 41 mi S Sabinas Hidalgo; 22 mi S San Roberto; 40 mi S San Roberto; 46 mi NW San Roberto; Santiago; Vallecillo. *Oaxaca*: 3 mi SE El Tule; 10 mi N Miltepec; Mitla; Oaxaca; 2 mi NW Oaxaca; Ruinas Zaachila; 13 km W Tehuantepec; 22 mi SE Totalapán, San José Viejo. *Puebla*: Acatlán; 11 mi SE Acatlán; 19 mi NW Calcalcapan; Chilac; Puebla; 6 mi SW Tehuacán; 7 mi NE Tehuacan; Valseguillo. *Querétaro*: Oro. *San Luis Potosí*: 3 mi W Cedral; 12 mi W Ciudad del Maíz; 20 mi S Ciudad Valles; 19.6 mi N El Huizache; 28.5 mi S El Huizache; El Salto; 34 mi S Salinas; 10 mi NE San Luis Potosí; 31 mi S San Luis Potosí; 46 mi N San Luis Potosí; 84 mi NE San Luis Potosí; 123 mi NE San Luis Potosí; V Hidalgo; 12 mi NE V. Hidalgo. *Sinaloa*: Los Mochis; 5 mi N Mazatlán; 46 mi E Mazatlán. *Sonora*: 20 mi SE Agua Prieta; 65 mi SE Agua Prieta; Alamos; 7 mi SE Alamos; 7 mi W Alamos; 10 mi W Alamos; Bahía Kino; 1 mi W Caborca; Cabullona; Campo Utah; El Desemboque; El Fuerte; 5 mi E Esqueda; 20 mi S Estacion Llano; Guaymas; 26 mi SE Guaymas; Hermosillo; 40 mi N Hermosillo; 42 mi S Hermosillo; 9 mi NNE Imuris; La Chiripa; La Choya; La Floresta Ranch, 8 mi E Tastiota; Magdalena; Minas Nuevas; Mira Mar Beach; Navojoa; 5 mi E Navojoa; Nogales; Palm Canyon, 17 mi E Magdalena; Pitiquito; Pozo Coyote; Puerto Peñasca; San Bernardino, Río Mayo; 8 mi S Santa Ana; Santa Rosa Ranch; Santa Teresa; Sonora; 20 mi S Sonoyta;

38 km S Sonoyta; Tastiota; Tiburón Island; V. de Seris, 5 mi SW Hermosillo; Yavaros. *Tamaulipas*: Ciudad Victoria; 25 mi S Ciudad Victoria; 81 mi NW Ciudad Victoria; 35 km N El Limon; Gómez Fariás; Guemes, 15 mi N Ciudad Victoria; Lago Republica Española; Matamoros; San Fernando; San José. *Veracruz*: 1 mi NE Acultzingo; Orizaba. *Zacatecas*: 4 mi NE Concepción del Oro; Fresnillo; 1 mi N Fresnillo; 8 mi S Fresnillo; 9 mi S Fresnillo; 25 mi W Fresnillo, Laguna Balderama; 14 mi N Luis Moya; Sain Alto; 28 mi NE Sierra Viejo.

GUATEMALA: *Jutiapa*: 6 mi NE El Progreso.

Comments. This subspecies is extremely variable and has been the subject of much confusion in the past. Its relationship with the nominate subspecies is discussed under the comments section of that subspecies.

Ruckes (1957a) divided *T. pallidovirens* into four subspecies: *pallidovirens* from the far western U.S.; *setosa* from the northwestern U.S.; *spinosa* from the southwestern U.S. and Mexico; and *accerra* from the eastern U.S. Ueshima (1963) showed that specimens of *pallidovirens* from California have a different chromosome number than specimens from the eastern U.S. (14 + XY in the male versus 16 + XY, respectively). Because of this difference, he believed that the two populations were genetically isolated and were probably two distinct species. The difference in chromosome number has been confirmed in the present study. Cross-breeding and free-choice mating experiments also have been conducted, the results of which support the separation of the two taxa into distinct species (e.g., specimens from California and Louisiana mated and laid eggs, but the eggs were infertile).

Ruckes (1957a) described *T. pallidovirens setosa* from Idaho and eastern areas of Oregon and Washington. During this study, specimens from Nez Perce Co., Idaho were karyotyped. They had a chromosome complement of 14 + XY in the male, the same as *T. pallidovirens* from California.

Ruckes (1957a) described *T. pallidovirens spinosa* from the southwestern U.S. Ueshima (1963) karyotyped specimens of this form collected from southeastern California. He found that males had a chromosome complement of 14 + XY, and he concluded that the designation of *spinosa* as a subspecies of *T. pallidovirens* was probably correct. During the present study, however, specimens karyotyped from several localities in southern Arizona were found to have a chromosome complement of 16 + XY. Also, in cross-breeding experiments, specimens from Arizona and Louisiana readily interbred with no apparent difficulties and produced viable young. Therefore, it is probable that *spinosa* is *T. custator accerra*, not *T. pallidovirens*.

Ruckes (1957a) used the spinose humeral angles of *T. pallidovirens spinosa* to separate it from *T. custator accerra* (=his *T. p. accerra*). This character is relatively variable, however. Long series from many localities within the range of *spinosa* usually include specimens with spinose humeral angles and specimens with rounded humeral angles, as well as many intermediates. Geographical separation of the two forms is not complete, and therefore *spinosa* is placed as a junior synonym of *T. c. accerra*.

Distinguishing *T. custator accerra* and *T. pallidovirens* can be difficult. In general, specimens of *T. c. accerra* (excluding the *spinosa* form) have a postspiracular black spot on each side of each abdominal sternite, while specimens of *T. pallidovirens* do not. However, some (<10%) specimens of *T. pallidovirens* have postspiracular black spots, but the spots are usually smaller than the adjacent spiracle. Conversely, some

(<10%) specimens of *T. c. accerra* lack postspiracular black spots. Fortunately, the two species are geographically separated except in the southwestern U.S., where *T. pallidovirens* overlaps considerably with the *spinosa* form of *T. c. accerra*. These two forms can usually be separated by the degree of spinosity of the humeral angles. *Thyanta pallidovirens* always has rounded humeral angles, while the *spinosa* form of *T. c. accerra* usually has angulate to spinose humeral angles. Also, most specimens of *T. pallidovirens* have at least a partial reddish transhumeral band, a condition that is rare in the *spinosa* form of *T. c. accerra*.

Thyanta (Thyanta) pallidovirens (Stål)

Figs. 48–62, Map 4

Pentatoma pallidovirens Stål, 1859:227; Walker, 1867:288.

Thyanta pallidovirens: Stål, 1862a:58; Stål, 1872:35; Uhler, 1886:7; Lethierry and Severin, 1893:148; Uhler, 1894a:231; Van Duzee, 1904:53–54; Banks, 1910:90 (part); Van Duzee, 1917:52; Torre-Bueno, 1939:232; Ruckes, 1957a:1–22, Froeschner, 1988:593.

Thyanta custator (of authors, not Fabricius): Uhler, 1872:399 (part); Uhler, 1876: 289–290 (part); Kirkaldy, 1909:94 (part); Van Duzee, 1914:4–5 (part); Van Duzee, 1916:231; Van Duzee, 1917:52 (part).

Thyanta pallidovirens setosa Ruckes, 1957a:17–18; Froeschner, 1988:593. NEW SYNONYMY.

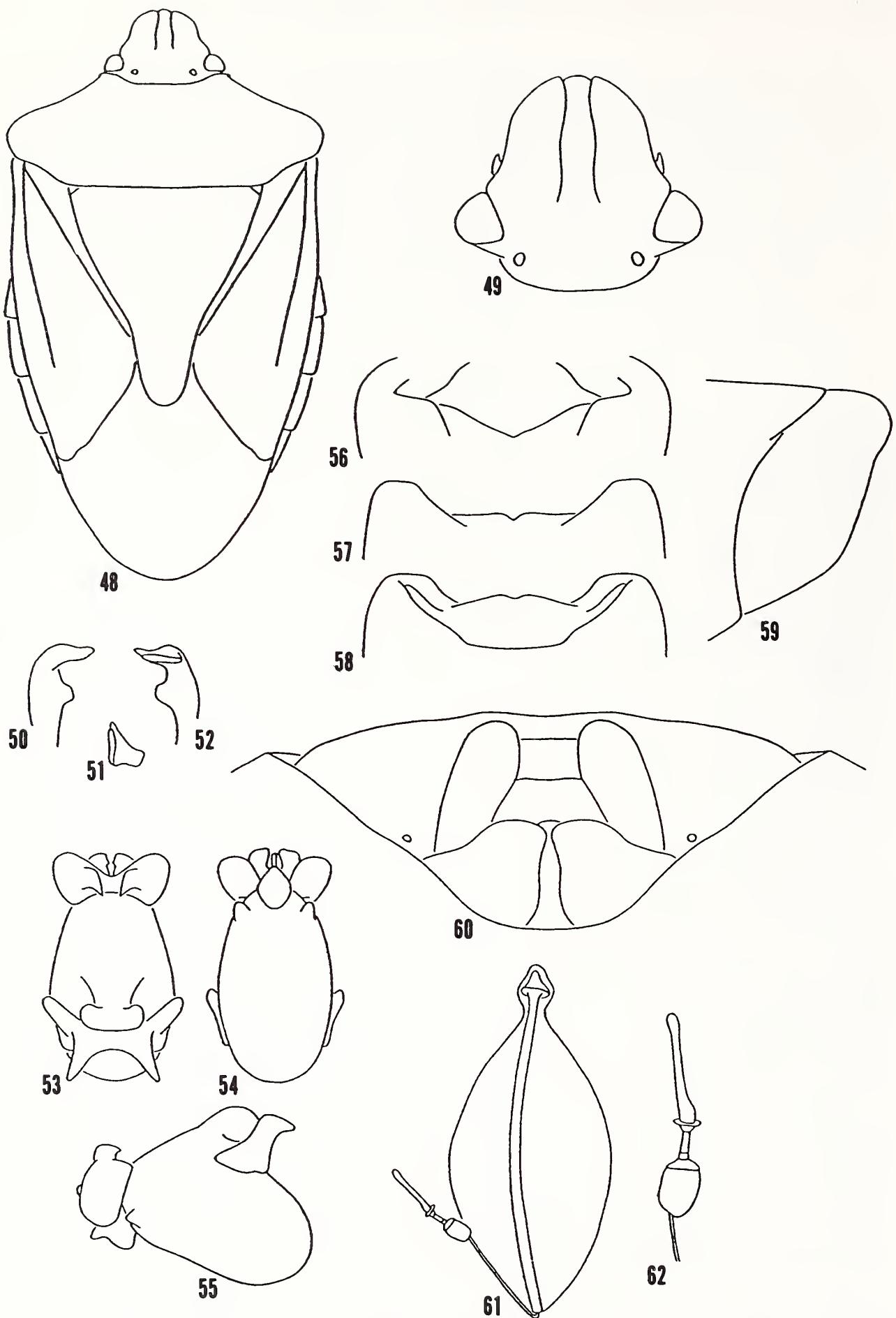
Diagnosis. Dorsal coloration often with varying amounts of reddish between humeral angles, often extending onto basal margin of each corium and along anterolateral pronotal margins; sometimes apex of scutellum reddish.

Lateral jugal margins sinuous, not parallel (Fig. 49). Anterolateral margins of pronotum straight to slightly concave in dorsal view, green to reddish, never piceous; humeral angles rounded (Fig. 48); pronotal cicatrices immaculate. Postspiracular black spots usually lacking; if present, then usually smaller than adjacent spiracle. Posterolateral angles of abdominal sternites immaculate.

Basal plates in caudoventral view with mesial margins straight to slightly concave; posterior margins sinuous; posteromesial angles narrowly rounded (Fig. 60). Posterolateral angles of pygophore continuing onto posteroventral surface of pygophore as carinae, forming rectangular impression; posterior margin slightly concave in caudal view, usually with small, medial, V-shaped emargination (Fig. 56); posterolateral angles prominent in ventral and dorsal views (Figs. 57, 58); pygophore slightly concave in lateral view (Fig. 59).

Types. Stål (1859) described *Pentatoma pallidovirens* from 1♂ and 1♀ specimen from California without designating a holotype or paratype. The ♂ specimen labeled (a) "California" (b) "Kinb." (c) "Type" (d) "Typus" (e) "Thyanta pallidovirens Stål" (f) "109 51" (g) "349 84" (h) "Riksmuseum Stockholm" is designated the lectotype. The ♀ specimen labeled (a) "California" (b) "Kinb." (c) "♀" (d) "Type." (e) "Allo-typus" (f) "350 84" (g) "Riksmuseum Stockholm" is designated paralectotype. The lectotype and the paralectotype, which are conserved in the Naturhistoriska Riks-museet (Stockholm, Sweden), were examined.

Ruckes (1957a) described *T. pallidovirens setosa* from 18♂♂ and 10♀♀ specimens.



Figs. 48–62. *T. pallidovirens*. 48. Habitus. 49. Head. 50–52. Right paramere. 50. Medial view. 51. Ectal view. 52. Lateral view. 53–55. Theca and related structures. 53. Ventral view. 54. Dorsal view. 55. Lateral view. 56–59. Pygophore. 56. Caudal view. 57. Ventral view. 58. Dorsal view. 59. Lateral view. 60. Genital plates, caudoventral view. 61. Spermatheca. 62. Spermathecal pump.



Map 4

Map 4. *T. pallidovirens*.

The holotype, which was examined, is from Pullman, Whitman Co., Washington, and is deposited in the American Museum of Natural History (New York).

Distribution. Western U.S. (Map 4).

Specimens examined. 3,606 specimens collected during every month of the year; deposited in AMNH, CAS, DAR, EGER, FMNH, FSCA, INHS, ISU, LACM, LHR, LSU, MSU, MSUB, MSUE, NCSU, ODAS, OSUC, PUL, SIUC, SMEK, TAMU, UCB, UCR, UCS, UGA, UIM, UNAM, USNM, UUSL, WSU. CANADA: British

Columbia: Cache Ck; Coldstream; Comox; Lytton; Malahat; Nanaimo; Vancouver Isl; Royal Oak; Saanich Dist; Vernon; Victoria; Wellington.

UNITED STATES: California: *Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Inyo, Kern, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo, Yuba*. Idaho: *Ada, Benewah, Bingham, Blaine, Boise, Bonner, Butte, Cassia, Clearwater, Elmore, Franklin, Fremont, Gem, Gooding, Idaho, Kootenai, Lake, Latah, Lewis, Nez Perce, Oneida, Owyhee, Shoshone, Twin Falls, Valley*. Montana: *Lake, Lewis & Clark, Ravalli, Sanders*. Nevada: *Carson City, Douglas, Lyon, Washoe*. Oregon: *Baker, Benton, Crook, Curry, Deschutes, Douglas, Grant, Harney, Hood River, Jackson, Jefferson, Josephine, Klamath, Lake, Linn, Malheur, Marion, Multnomah, Polk, Sherman, Tillamook, Umatilla, Union, Wasco, Washington, Wheeler, Yamhill*. Utah: *Box Elder, Cache, Garfield, Morgan, Salt Lake, Sevier, Utah, Washington, Wheeler, Yamhill*. Utah: *Box Elder, Cache, Garfield, Morgan, Salt Lake, Sevier, Utah, Washington, Weber*. Washington: *Asotin, Benton, Chelan, Clark, Columbia, Douglas, Grant, King, Kittitas, Mason, Okanagon, Pierce, San Juan, Snohomish, Spokane, Thurston, Walla Walla, Whitman, Yakima*.

Comments. Ruckes (1957a) distinguished *T. pallidovirens setosa* from other U.S. *Thyanta* by the increased amount of pilosity on the legs and rostrum. This is a difficult character to discern. The brown autumnal-vernal forms of several other species and subspecies are also characterized by more and longer hairs on the same body structures (McPherson, 1979a). Because *T. p. setosa* differs from the nominate subspecies in no other significant manner, *T. p. setosa* is placed as a junior synonym of *T. pallidovirens*.

No reliable morphological character will consistently separate *T. pallidovirens* from *T. custator accerra*, as discussed in detail under the comments section of *T. c. accerra*. Basically, in the southwestern U.S. the two usually can be separated by the shape of the humeral angles, which are rounded in *T. pallidovirens* and angulate to spinose in *T. c. accerra*. In the northwestern U.S., the two species seem to be geographically isolated (Maps 3, 4). Here, separation often can be made based on the presence (in *T. c. accerra*) or absence (in *T. pallidovirens*) of postspiracular black spots.

Thyanta (Thyanta) perditor (Fabricius)
Figs. 63–77, Map 5

Cimex perditor Fabricius, 1794:102; Fabricius, 1803:163.

Pentatoma fascifera Palisot de Beauvois, 1817:150, fig. 8 (syn. by Dallas, 1851:206).

Pentatoma collaris Westwood, 1837:40 (syn. by Dallas, 1851:206).

Cimex transversalis Herrich-Schäffer, 1841:66 (syn. by Dallas, 1851:206).

Cimex dimidiatus Herrich-Schäffer, 1841:fig. 629 (syn. by Dallas, 1851:206).

Pentatoma dimidiatum: Herrich-Schäffer, 1844:94 (syn. by Dallas, 1851:206).

Euschistus perditor: Dallas, 1851:206; Walker, 1867:247.

Pentatoma (Mormidea) perditor: Guérin-Méneville, 1857:367.

Thyanta perditor: Stål, 1862a:58; Stål, 1862b:104; Stål, 1868:29; Stål, 1872:34; Uhler, 1872:399 (part); Uhler, 1876:289; Uhler, 1877:404 (part); Distant, 1880:66; Berg, 1884:100; Distant, 1893:333; Lethierry and Severin, 1893:148; Uhler, 1893:705; Uhler, 1894a:230 (part); Uhler, 1894b:173; Distant, 1900:432; Van Duzee, 1904: 52–53 (part); Van Duzee, 1907:9; Kirkaldy, 1909:95; Banks, 1910:90; Zimmer, 1912:14 (part); Barber, 1914:523; Van Duzee, 1917:51–52; Barber, 1923:12; Blatchley, 1926:113, 114–115 (part); Barber, 1939:292–293; Torre-Bueno, 1939: 230; Ruckes, 1957a:1, 20; Froeschner, 1988:593.

Euschistus fasciatus Walker, 1867:245 (syn. by Stål, 1872:34).

Euschistus adjunctor Walker, 1867:249 (syn. by Stål, 1872:34).

Thyanta (Thyanta) perditor: Rider and Chapin, 1991.

Diagnosis. Transhumeral rubiginous band usually present; tylus and vertex of head often reddish.

Lateral jugal margins sinuous, not parallel (Fig. 64). Humeral angles spinose, each spine directed anterolaterad; anterolateral pronotal margins not piceous, concave in dorsal view (Fig. 63). Mesial corner of each pronotal cicatrice black. Each abdominal sternite with postspiracular black spot on each side, both anterolateral and postero-lateral angles usually piceous.

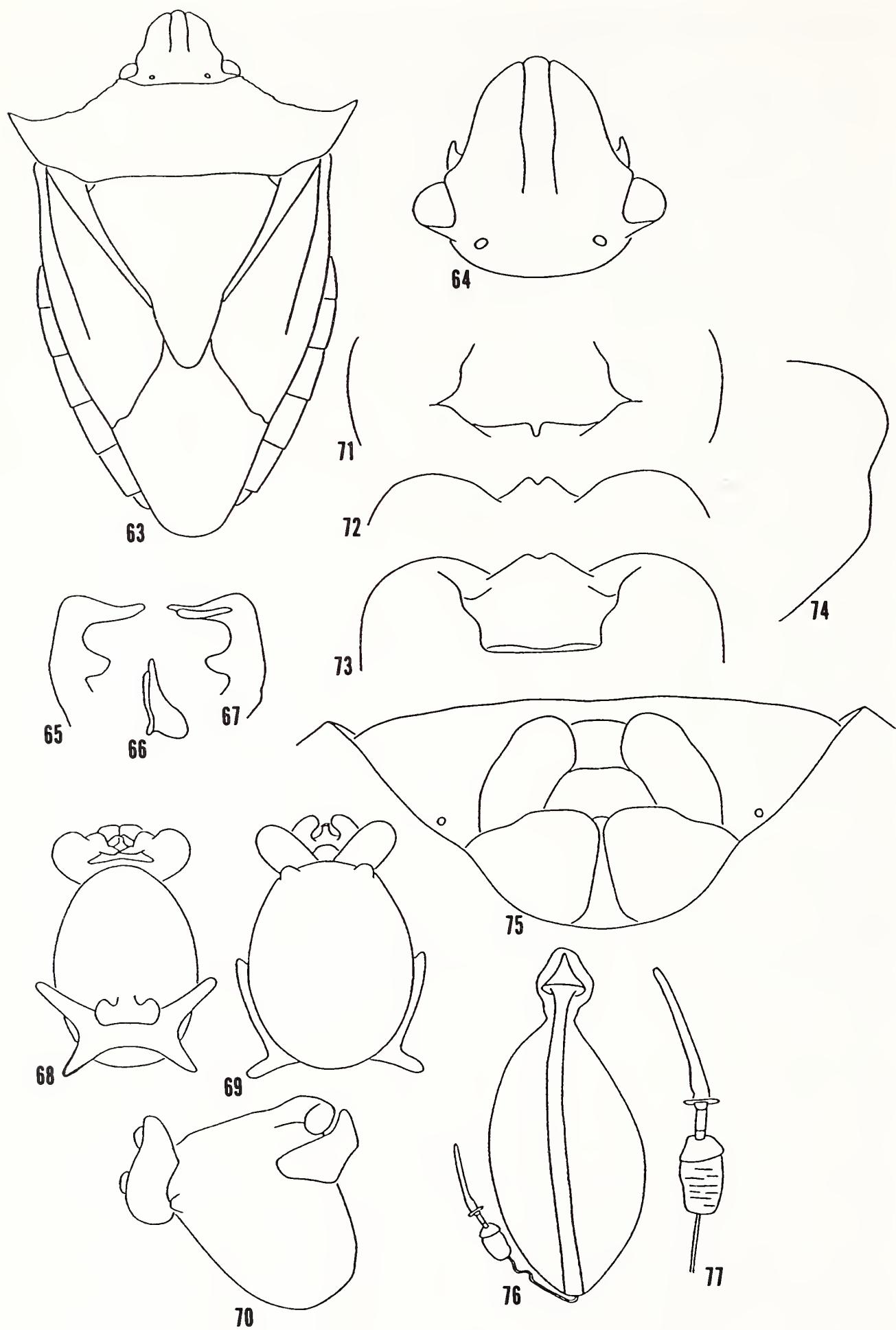
Basal plates with mesial margins straight to slightly convex in caudoventral view; posterior margins sinuous (Fig. 75). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, in ventral and dorsal views convex medially with small, medial, V-shaped emargination (Figs. 72, 73), concave in lateral view (Fig. 74).

Types. Fabricius (1794) described *Cimex perditor* from 2♂♂ and 2♀♀ specimens without designating a holotype or paratypes. Rider and Chapin (1991) made lectotype and paralectotype designations. All four specimens, which are housed in the Universitetes Zoologiske Museum (Copenhagen, Denmark), were examined.

Rider and Chapin (1991) confirmed the status of *Pentatoma fascifera* Palisot de Beauvois, *P. collaris* Westwood, *Cimex transversalis* Herrich-Schäffer, *Euschistus fasciatus* Walker, and *E. adjunctor* Walker as junior synonyms. They also designated lectotypes for the latter two species. At one time *Euschistus rubiginosus* Dallas was considered a synonym of *T. perditor*. Rider (1986b), however, examined the holotype of *E. rubiginosus* and determined that it was a senior synonym of *Euschistus incus* Rolston.

Distribution. This is the most widely distributed species in the genus, occurring from southern Florida, Texas, and Arizona south through Central America, West Indies, and South America to northern Argentina (Map 5).

Specimens examined. 844 specimens collected during every month of the year; deposited in AMNH, AUA, BMNH, CAS, CNC, CU, DAR, DBT, FSCA, INHS, ISU, LHR, LSU, MSU, MSUE, OSUC, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UMAA, UMC, UNAM, USNM, WSU. UNITED STATES: Arizona: Cochise: Southwest Research Station, 5 mi W Portal. Florida: Flamingo; Mahogany Hammock; Paradise Key; Pine Castle; Windly. Broward: Deerfield Beach. Collier: Immokalee; Royal Palm Park. Dade: Coral Gables; Everglades National Park; Florida City; 5 mi SW Florida City; Goulds; Grossman Hammock; Hialeah; Homestead; Kendall; Miami; Miami Springs; Princeton. Highlands: Avon Park; Lake Plac-

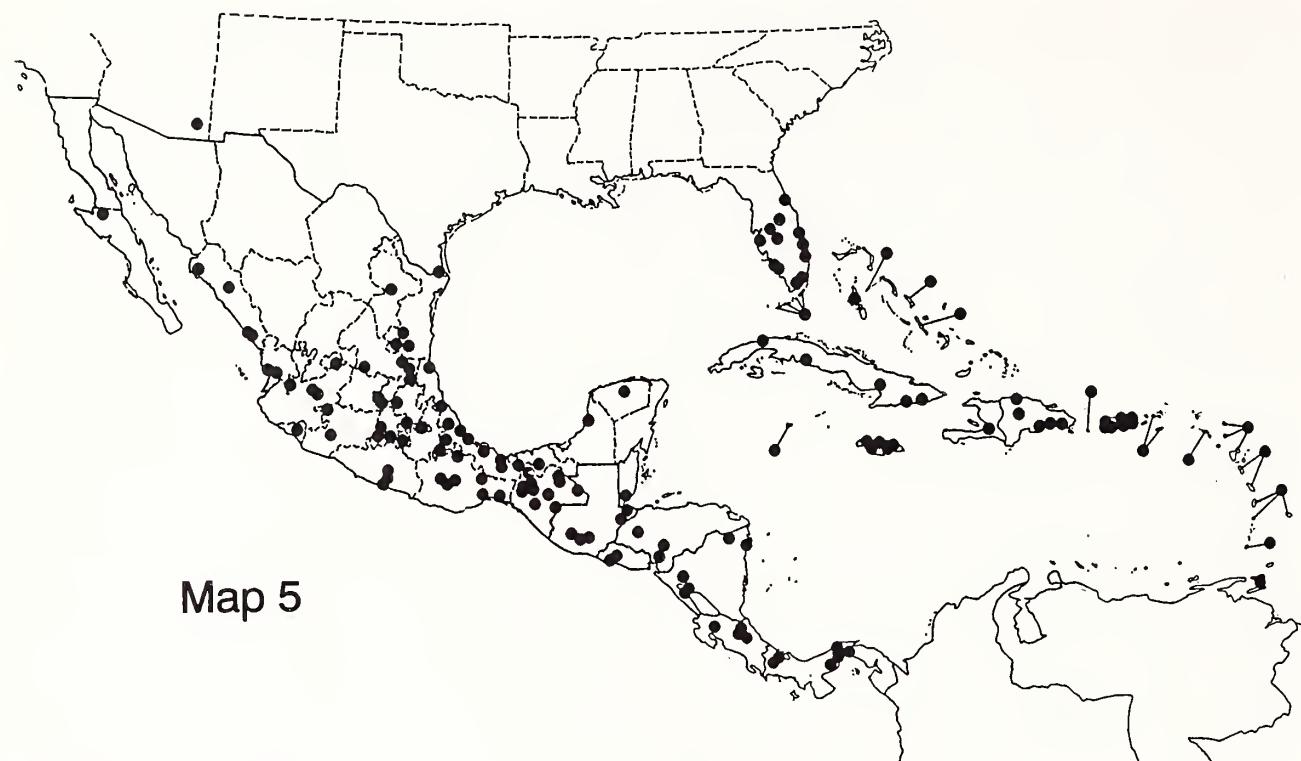


id; Sebring. *Indian River*: Vero Beach. *Lee*: Fort Myers. *Manatee*: Palmetto; Terra Ceia. *Martin*: Stuart. *Monroe*: Big Pine Key; Key Largo; Key West; Marathon Key; Upper Key Largo; Upper Matecumbe Key. *Orange*: Orlando. *Palm Beach*: Belle Glade; Delray; Royal Palm Park. *Polk*: Lake Hamilton; Lakeland. *Volusia*: Daytona Beach. *Texas*: *Cameron*: Brownsville; Sabal Palm Grove near Southmost.

MÉXICO: Hochmilco; Lagos de Moreno; Paricutin. *Aguascalientes*: Aguascalientes. *Campeche*: km 71 Carr. Campeche-Meizina. *Chiapas*: Arriaga; 4.4 mi N Bochil; Bonampak Ruinas; Chicoasen; Chorreadera State Park; Cintalpa; 5 mi S Cintalpa; 13 mi W Cintalpa; Comitán; 31.5 mi SE Comitán; Dos Lagos; El Sumidero; 1.6 mi S Jitotol; 13 mi S La Trinitario; 18 km S La Trinitario; 12 mi W Ocozocoautla; Palenque; Palenque Ruinas; 23 mi S Palenque, 4 mi NE Pichucalco; 1 mi S Rayón; 2 mi SE Revolucion Mexicana; 3 mi W Rizo de Oro; Sanches Ranch Las Rosas; San Cristóbal de las Casas; 8 mi SE San Cristóbal las Casas; 23 mi W San Cristóbal de las Casas; 39 mi E San Cristóbal las Casas; Simojovel; 10 km WNW Soyalo; 2 mi E Suchiapa; Sumidero Canyon; 9 mi SE Tapilula; Teopisca; 14 mi N Tuxtla Gutiérrez; 3.5 km S Río Tulija. *Colima*: Colima Volcano. *Durango*: 9 mi W La Ciudad; Peasa Pena. *Guanajuato*: León. *Guerrero*: Acahuizotla; Acapulco de Juárez; 5 mi S, 2.5 mi E Chilpancingo; km 8 Carr. Chilpancingo Omilteme; 17 mi N Mexcala; Mochitlán; 1.5 mi W Mochitlán; 13 mi SW Tierra Colorado. *Hidalgo*: Hwy 45, 17 mi NE Huichapan. *Jalisco*: 16 km E Agua el Obispo; Ajijic; Guadalajara; 5 mi SE Plan de Barrancas. *México*: 4.3 mi NE Ixtapán de la Sal; Tejupilco; Temascaltepec, Real de Arriba; Teotihuacán; 11 mi W Texcoco; 1 mi NE Tlamacas, P. N. Popocatepetl; Valle de Bravo; 21 mi NW Valle de Bravo. *Michoacán*: Apatzingán; 11 mi E Apatzingán; Jiquilpán; Palo Alto; Tancitaro. *Morelos*: Cuautla; Cuernavaca; Jojutla; Morelos; Pte de Itla; Xochicallo. *Nayarit*: 13 mi NW Ahuacatlán; Jesus Maria; Nayarit-Jalisco line, Hwy 15; 15 km E San Blas; Tepic. *Nuevo León*: 9 mi S Monterrey; 3 mi S Pacheco. *Oaxaca*: 7.7 mi S Ejutla; El Camaron, 20 mi E Oaxaca; 2.7 mi NW El Camaron; 10 mi S El Camaron; 27 mi E Juchitán; 3 km E La Ventosa; 3.4 mi SE Matatlán; 11 mi N Matías Romero; SE Nejapa; 30 mi NW Oaxaca; 45 mi SE Oaxaca; 53 mi NE Oaxaca; Tehuantepec; Temazcal; 23 mi W Tequistlán; Totolapán; 18 mi NW Totolapán; 23 km NW Totolapán; Tuxtepec. *Puebla*: 5.1 mi SW Tehuacán; 6 mi SW Tehuacán. *Querétaro*: Querétaro; 29 mi N Querétaro; 10 mi E San Juan del Río. *San Luis Potosí*: 5 mi E Ciudad del Maíz; 11 km N Ciudad Valles; 20 mi S Ciudad Valles; El Pujal; El Salto Falls; Micos; 31 mi S San Luis Potosí; Tamazunchale; 30 mi S Tamazunchale; Valle Hidalgo; 2 mi E Xilita. *Sinaloa*: 22.6 mi S Culiacán; Los Mochis; Mazatlán; 15 mi N Mazatlán; Valle Unión; 5 mi E Valle Unión. *Tabasco*: 30 mi W Cárdenas; Chontalpa; Pajelagatero; Pico do Oro; 5 km S Villahermosa; 14 mi SE Villahermosa. *Tamaulipas*: Bocatoma: 11 mi SW Ciudad Victoria; 6 mi W Río Sabinas, near Encino; 19 mi NE Tula. *Tlaxcala*: 2 mi W Tlaxcala. *Veracruz*: Alvarado; Catemaco; 7 mi SE Catemaco; Coatzacoalcos; Córdoba; 1 mi E Córdoba;



Figs. 63–77. *T. perditor*. 63. Habitus. 64. Head. 65–67. Right paramere. 65. Medial view. 66. Ectal view. 67. Lateral view. 68–70. Theca and related structures. 68. Ventral view. 69. Dorsal view. 70. Lateral view. 71–74. Pygophore. 71. Caudal view. 72. Ventral view. 73. Dorsal view. 74. Lateral view. 75. Genital plates, caudoventral view. 76. Spermatheca. 77. Spermathecal pump.



Map 5. *T. perdior*.

Cotaxtla; Extación Mieron das Fortín; 1 mi W Fortín de las Flores; Jalapa; 10 mi E Jalapa; Lake Catemaco; 5 mi N Lerdo de Tejada; Los Tuxtlas Biological Station; L. Rivera. Atzagan; 4 mi NE Minatitlán; Nanchital; Orizaba; Papantla; Plan del Río; 3 mi SW Sontecompaپán; 15.8 mi S Tampico; Vega de Alatorre; Veracruz. Yucatán: 10 km N Pisté.

GUATEMALA: Chocola. Chimaltenango: Yepocapa. Guatemala: Guatemala City. Izabal: Livingston; Los Amates; Morales. Jutiapa: San Jerónimo. Sac.: Antigua Guatemala. Sololá: Panajachel, Lago de Atitlán. Suchitepequez: Alta Vista; 8 mi N Santa Bárbara. BELIZE: Punta Gorda. EL SALVADOR: La Libertad; San Salvador. HONDURAS: 1 mi W Jicaro Galan Junction, Rio Nacaome; Tegucigalpa; Uyace Peak; Yojoa Lake; Zomorano. NICARAGUA: km 4 to Masaya. Estelí: 13.4 mi NW Sebaco. León: Los Zarzales; Malpaisillo. Managua: Los Brasiles; Managua; Tipitapa. Musawas: Waspuk R. Zelaya: Puerto Cabezas. COSTA RICA: Isla Bonita; Reventazon Valley; San Carlos. Cartago: Santiago; Turrialba. Guanacaste: La Pacifica near Cañas. Heredia: Heredia; 2 mi E Puerto Viejo; Varablanca. Puntarenas: Monteverde. San José: 5.5 km SE Desamparados; San José. PANAMA: New California. Bocas del Toro: Chiriquí Grande. Canal Zone: Barro Colorado Island; Cristóbal. Chiriquí: Boquete; Cerro Punta; Porteillos. Coclé: Cerro Pena near El Valle. Panamá: Cerro Jefe; Madden Lake.

BAHAMA ISLANDS: Andros Island: Andros Town. Cat Island. Long Island: Clarencetown. New Providence Island: Nassau. CUBA: El Cobre. Ciudad de la Habana: La Habana. Cienfuegos: Palmira; Soledad nr Cienfuegos. Granma: Cayamas. Guantánamo: Mtns nr Guantánamo. Las Tunas: Jobabo. Pinar del Río: San Vicente. Santiago de Cuba: 12 mi N Santiago de Cuba. JAMAICA: Balaclava; Claremont Baron Hill Trelawny; Hope Bay; Kingston; Liguanea Plain; Mandeville; Montego

Bay. HAITI: *Ouest*: Kenscoff; Port-au-Prince. DOMINICAN REPUBLIC: 8 mi up Macorís River. *Distrito Nacional*: Santo Domingo. *La Romana*: La Romana Center. *La Vega*: Jarabacoa. *Peravia*: 2 km N Nizao; 21 km NW San José. *Puerto Plata*. *San Cristóbal*: San Cristóbal. *San Pedro de Macorís*: Boca Chica. PUERTO RICO: Cialitos Cruces, El Verde, Mona Island. *Aguadilla*: Añasco, Isabela, Rincón, San Sebastián. *Arecibo*: 7 km S Ciales, Dorado, Manatí, Utuado, Vega Baja. *Bayamon*: Corozal. *Guayama*: Arroyo. *Humacao*: Humacao, Loíza, 1 mi SE Luquillo, Naguabo. *Mayagüez*: Boqueron, Guánica Forest, Guayanilla, Mayagüez, San Germán. *Ponce*: Coamo Springs, Juana Díaz, Ponce, 3 mi N Santa Isabel. *San Juan*: Río Piedras. U.S. VIRGIN ISLANDS: *St. Croix*: Frederiksted. *St. Thomas*. BRITISH WEST INDIES: *Antigua*: Bello. *Barbuda*: Codrington. *Dominica*: Castle Bruce Road nr Savane David; Clarke Hall Est; 4.7 mi E Pt Casse; 5 km SW Pt Casse; Roseau. *Grand Cayman*: 3 mi N Georgetown; Western Dist. *Grenada*: Grand Anse; Mount Gay Est; St. Georges. *St. Kitts*: Basseterre; 4 mi W Basseterre. *St. Lucia*: Castries. *St. Vincent*. *Trinidad*: Cumuto; St. Augustine. FRENCH WEST INDIES: *Guadeloupe*: Pointe-à-Pitre. *Martinique*: 2 km N St. Pierre. BARBADOS.

Comments. *Thyanta perditor* is one of a group of very closely related species, all of which have distinctly spinose humeral angles. The characters used to separate these species are sometimes subtle and hard to diagnose unless a series of specimens is available. Fortunately, most have very little overlap in their distributional ranges.

Thyanta (Thyanta) spectabilis Ruckes
Figs. 78–92, Map 6

Thyanta spectabilis Ruckes, 1957c:175–178, figs. 3–4.

Thyanta perditor (of authors, not Fabricius): Van Duzee, 1923:127.

Diagnosis. Rubiginous transhumeral band usually present; often tylus and vertex of head reddish.

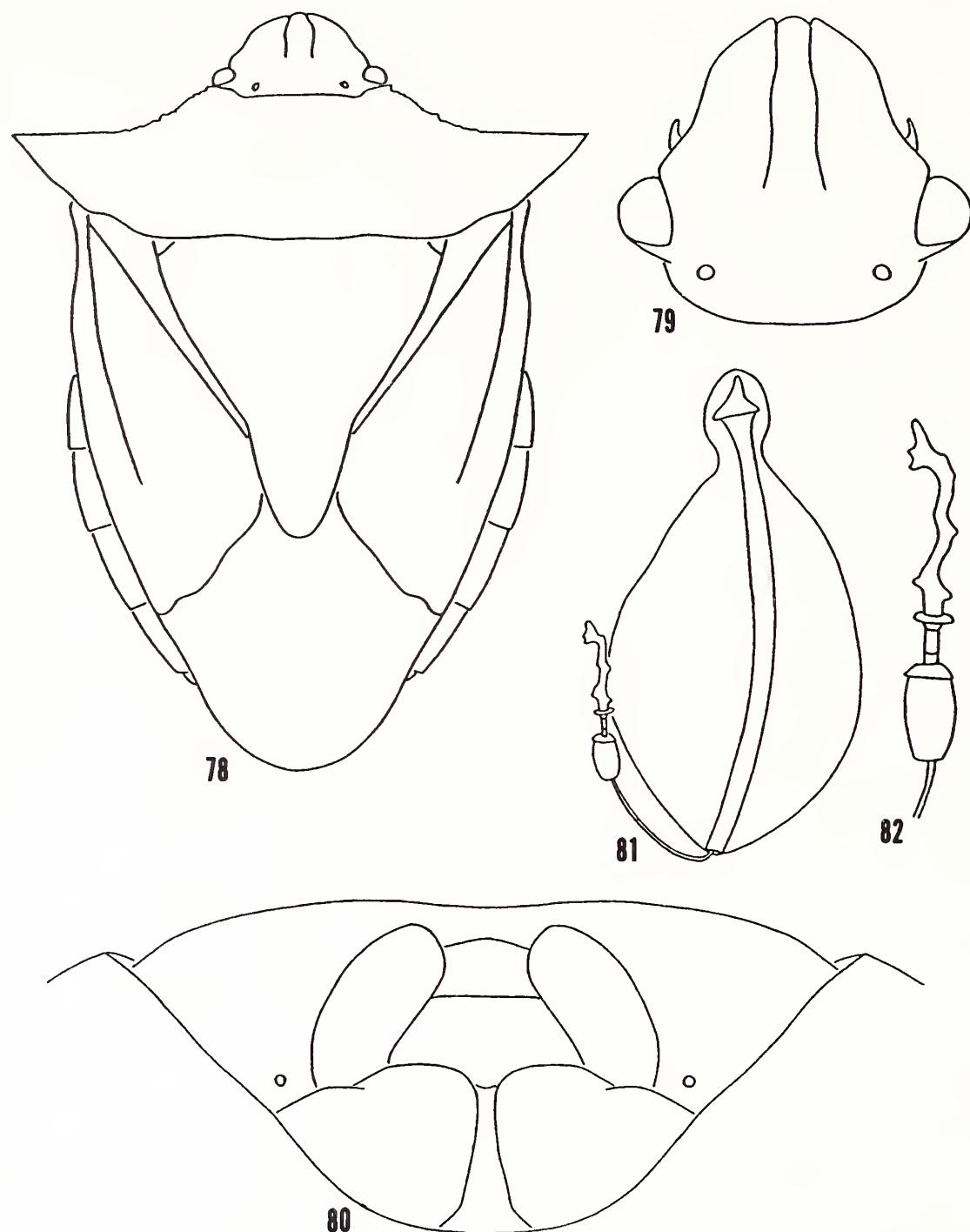
Lateral jugal margins sinuous, not parallel (Fig. 79). Anterolateral pronotal margins concave, not piceous; humeral angles spinose, spines directed primarily laterad and only slightly cephalad (Fig. 78). Mesial corner of each pronotal cicatrice usually piceous. Each abdominal sternite with postspiracular black spot on each side, anterolateral and posterolateral angles piceous.

Basal plates in caudoventral view with mesial margins straight to slightly convex; separated basally; posterior margins sinuous (Fig. 80). Spermathecal bulb digitiform, but with numerous short protuberances (Fig. 82). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, in ventral and dorsal views convex medially with small, medial V-shaped emargination (Figs. 84, 85); slightly concave in lateral view (Fig. 86).

Types. Ruckes (1957c) described *Thyanta spectabilis* from 2♂♂ and 6♀♀ specimens, all from Baja California, Mexico. The ♂ holotype was examined and is presently conserved in the California Academy of Sciences (San Francisco).

Distribution. Baja California, Mexico (Map 6).

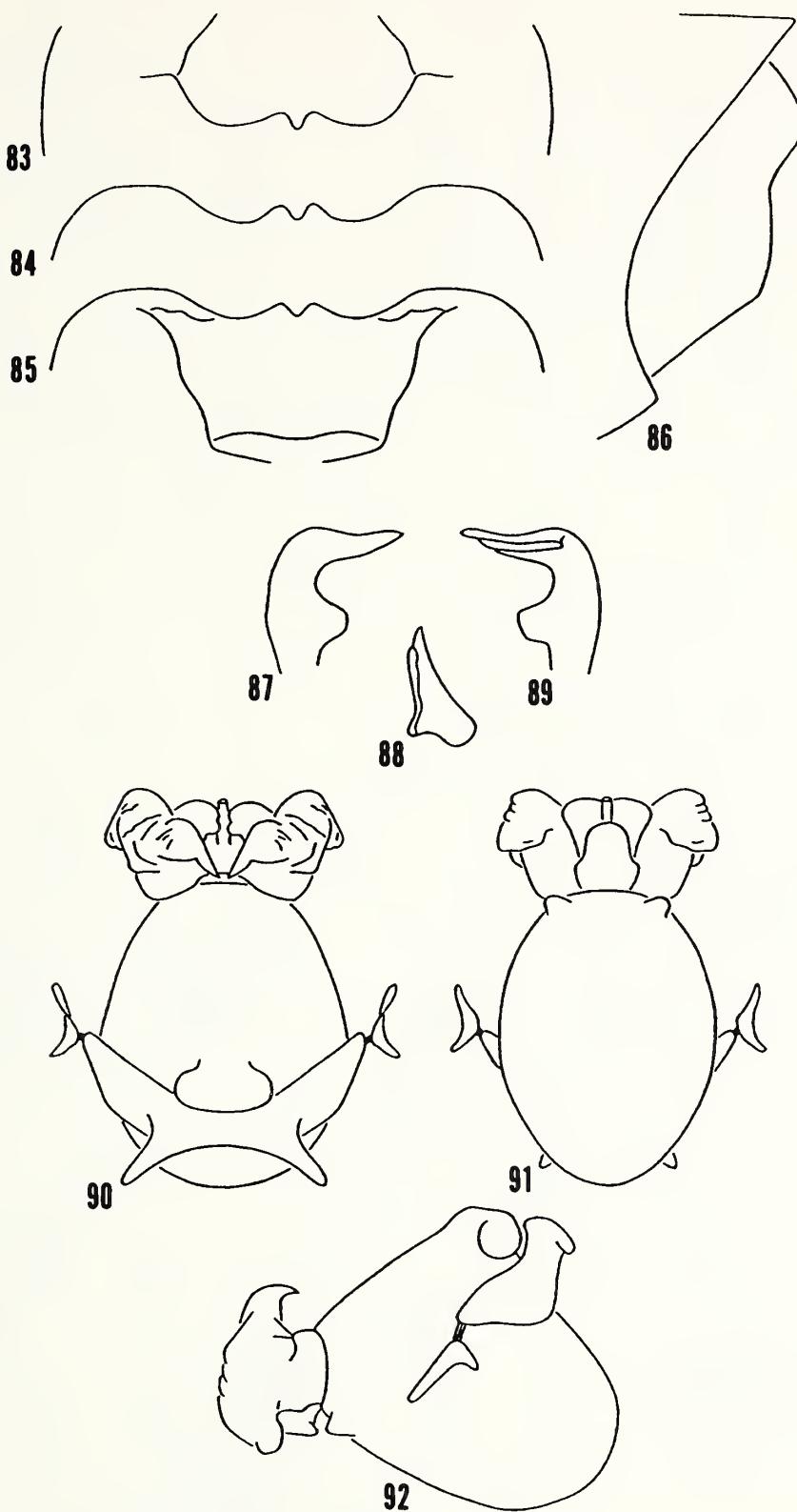
Specimens examined. 17 specimens collected during every month of the year except February, April, September, and October; deposited in CAS, DBT, UCB, UIM,



Figs. 78–82. *T. spectabilis*. 78. Habitus. 79. Head. 80. Genital plates, caudoventral view. 81. Spermatheca. 82. Spermathecal pump.

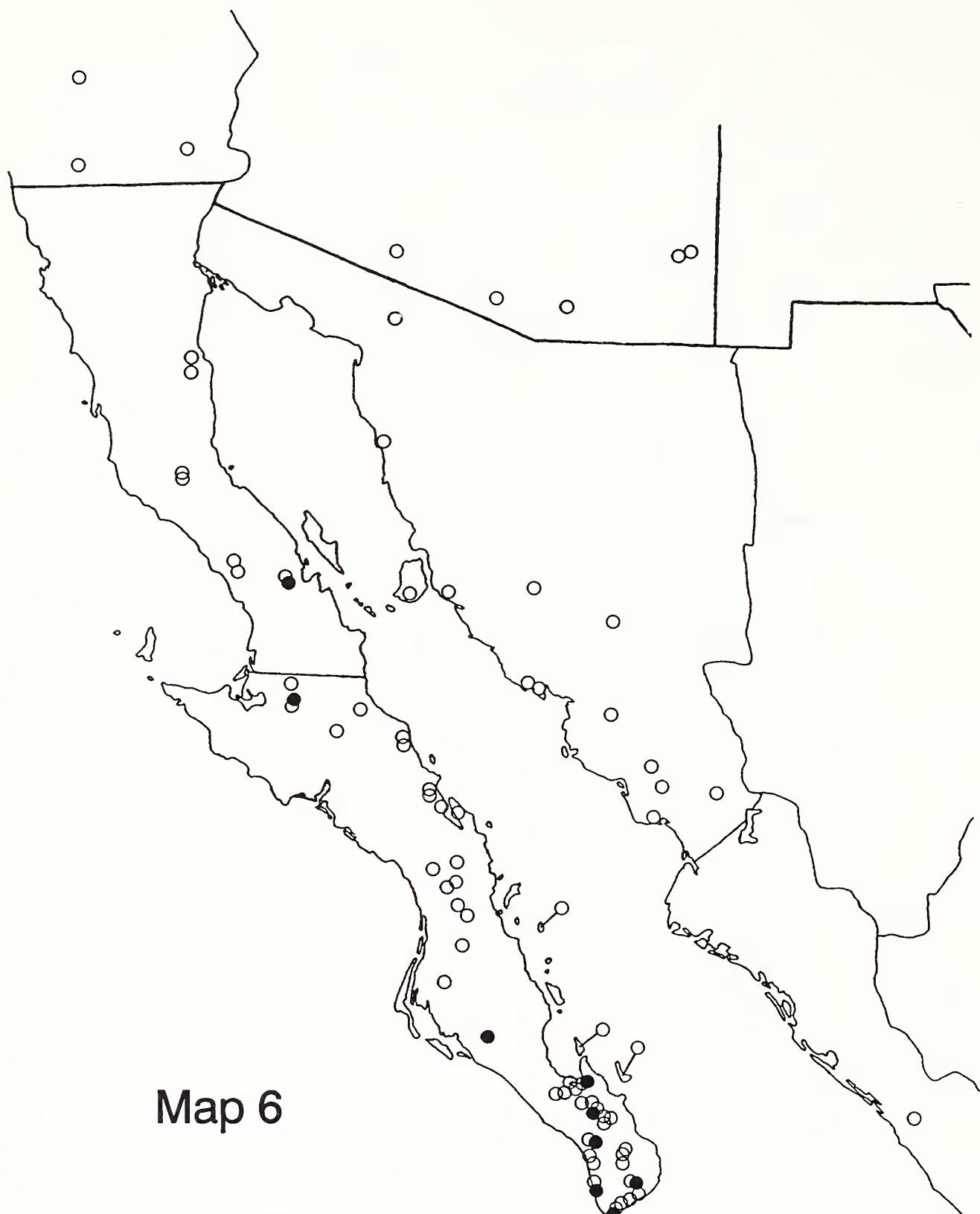
UNAM, USNM. MÉXICO: Lower California; 2 km W El Centenario. *Baja California Norte*: Bahía de los Angeles. *Baja California Sur*: Cabo San Lucas; 28 mi S El Arco Mine, Rancho Santa Marguerita; 2 mi E El Coyote, NE of La Paz; 6 mi S, 1 mi E El Pescadero; La Paz; 6 km S San Pedro; Santa Anita; 7 mi N Santa Anita; 2 km SE, 3.5 km NE Santa Rita; 21.6 mi N Todos Santos; Venancio.

Comments. *Thyanta spectabilis* is very closely related to *T. perditor*, and may actually be a subspecies of that species. The genitalia of the two species are virtually identical; the only difference is that the parameres in *T. spectabilis* are somewhat larger than those in *T. perditor*. This is expected, however, since specimens of *T.*



Figs. 83–92. *T. spectabilis*. 83–86. Pygophore. 83. Caudal view. 84. Ventral view. 85. Dorsal view. 86. Lateral view. 87–89. Right paramere. 87. Medial view. 88. Ectal view. 89. Lateral view. 90–92. Theca and related structures. 90. Ventral view. 91. Dorsal view. 92. Lateral view.

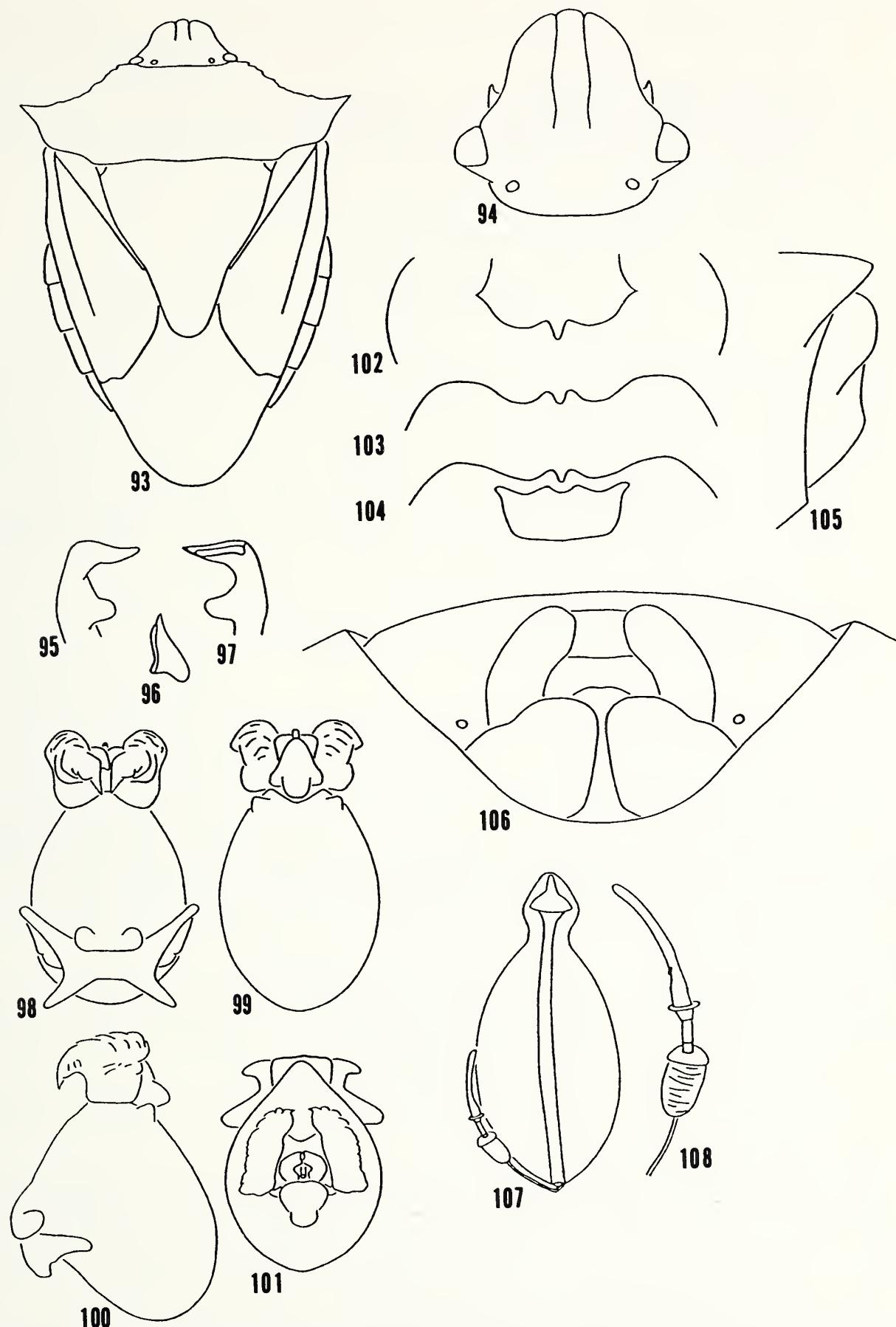
spectabilis are larger than those of *T. perditior*. The only reliable character to separate the two species is the orientation of the humeral spine. In *T. perditior* the humeral angle is directed anterolaterad, while in *T. spectabilis* it is directed primarily laterad and only slightly cephalad.



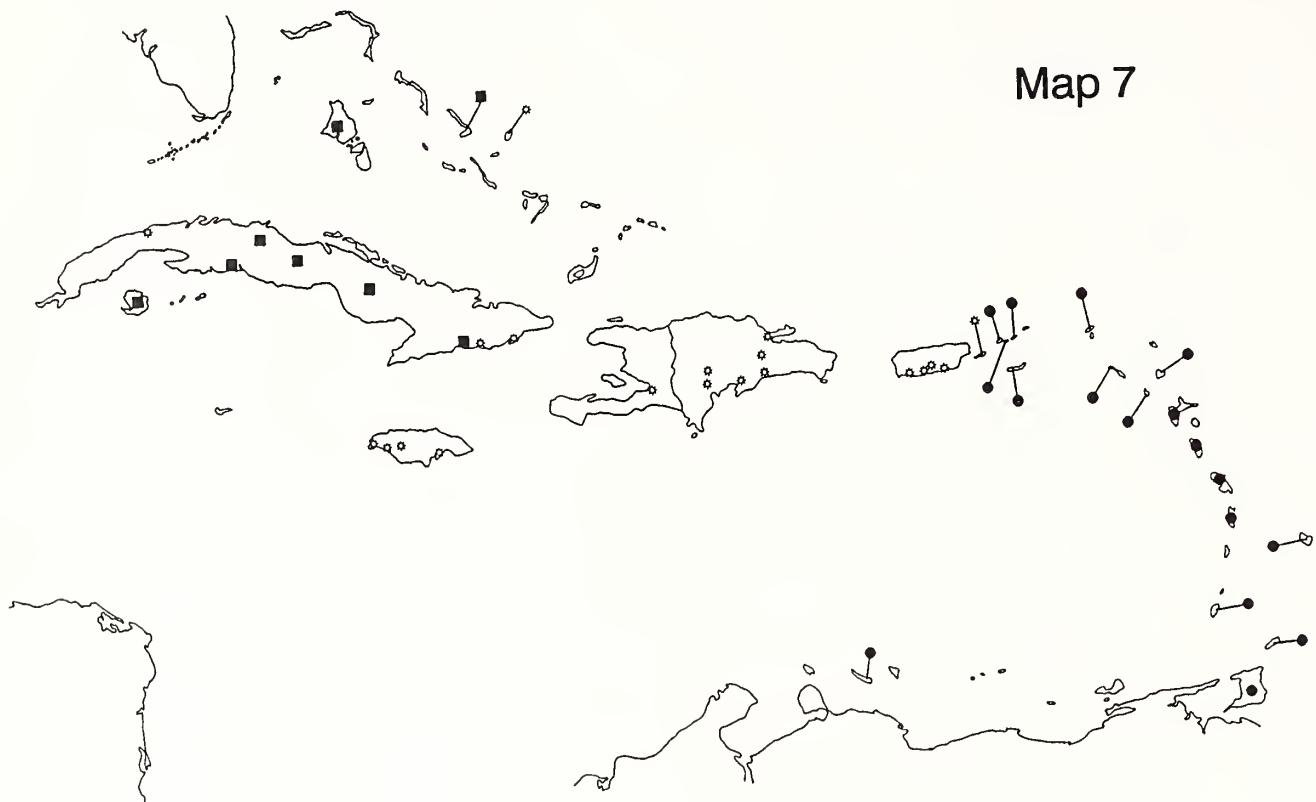
Map 6. *T. planifrons* (○); *T. spectabilis* (●).

Thyanta (Thyanta) cubensis Barber & Bruner
Figs. 93–108, Map 7

Thyanta cubensis Barber and Bruner, 1932:257–258, figs. 4–5; Bruner and Barber, 1949:158; Alayo, 1967:18, 20.



Figs. 93–108. *T. cubensis*. 93. Habitus. 94. Head. 95–97. Right paramere. 95. Medial view. 96. Ectal view. 97. Lateral view. 98–101. Theca and related structures. 98. Ventral view. 99. Dorsal view. 100. Lateral view. 101. Ectal view. 102–105. Pygophore. 102. Caudal view. 103. Ventral view. 104. Dorsal view. 105. Lateral view. 106. Genital plates, caudoventral view. 107. Spermatheca. 108. Spermathecal pump.



Map 7. *T. cubensis* (■); *T. obsoleta* (★); *T. testacea* (●).

Diagnosis. Dorsal coloration brown to green; transhumeral reddish markings lacking.

Lateral jugal margins sinuous, not parallel (Fig. 94). Anterolateral margins of pronotum slightly concave in dorsal view, usually contrastingly pale yellow; humeral angles spinose with spines small and directed anterolaterad (Fig. 93); pronotal cicatrices immaculate. Abdominal sternites with anterolateral angles immaculate, posterolateral angles piceous. Postspiracular black spot present on each side of each abdominal sternite.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins sinuous; posteromesial angles broadly rounded (Fig. 106). Pygophoral opening subtended by semicircular impression in caudal view; posterior margin of pygophore produced posterodorsad, convex with small, medial, V-shaped emargination in both ventral and dorsal views (Figs. 103, 104); pygophore slightly concave in lateral view (Fig. 105).

Types. Barber and Bruner (1932) described *Thyanta cubensis* from 14♂♂ and 5♀♀ specimens, all from Cuba. The holotype and 11 paratypes were examined. The holotype is housed in the U.S. National Museum of Natural History (Washington, D.C.).

Distribution. Bahama Islands and Cuba (Map 7).

Specimens examined. 32 specimens collected during every month except January, May, June, and November; deposited in AMNH, CAS, ISU, LHR, MSU, USNM. BAHAMA ISLANDS: Andros Island: Mangrove Bay. Cat Island. CUBA: Boniato. Archipiélago de los Canarreos: Isla de Pines. Camagüey: Camagüey. Ciego de Avila: Baraguá. Cienfuegos: Soldad near Cienfuegos. Granma: Cayamas. Pinar del Río:

Sierra Rangel. *Sancti Spíritus*: Zaza del Medio. *Santiago de Cuba*: Santiago de Cuba. *Villa Clara*: Santa Clara.

Comments. *Thyanta cubensis* is often smaller than the other species related to *T. perditior*, the humeral spines are shorter, the transhumeral reddish markings are usually absent, and the pronotal and abdominal black markings are reduced or absent.

Thyanta (Thyanta) serratulata Ruckes
Figs. 109–121

Thyanta serratulata Ruckes, 1957c:178–179, figs. 5–6.

Diagnosis. Body shape broad, stout.

Lateral jugal margins sinuous, not parallel (Fig. 110). Anterolateral pronotal margins immaculate, in dorsal view concave, serrate, especially anteriorly; humeral angles spinose, spines relatively short, directed anterolaterad (Fig. 109). Pronotal cicatrices immaculate or often marked with black in each mesial angle. Postspiracular black spots absent. Anterolateral angles of abdominal sternites immaculate; posterolateral abdominal angles concolorous with rest of segment or sometimes marked with black.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins sinuous (Fig. 116). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, convex with small, medial, V-shaped emargination in caudal view (Fig. 114); slightly concave in lateral view (Fig. 115).

Types. Ruckes (1957c) described *T. serratulata* from 13♂♂ and 13♀♀ specimens. The holotype and 17 paratypes were examined. The holotype is housed in the California Academy of Sciences (San Francisco).

Distribution. Known only from the type locality: Clarión Island, Revillagigedo Islands, Mexico.

Specimens examined. 21 specimens collected between 27 February and 8 May; deposited in AMNH, CAS, LACM, USNM. MÉXICO: Colima: Revillagigedo Islands, Clarión Island.

Comments. *Thyanta serratulata* can be identified by the broad, stout shape, the short humeral spine, the lack of post-spiracular black spots, and the reduction or absence of black markings on the lateral abdominal angles.

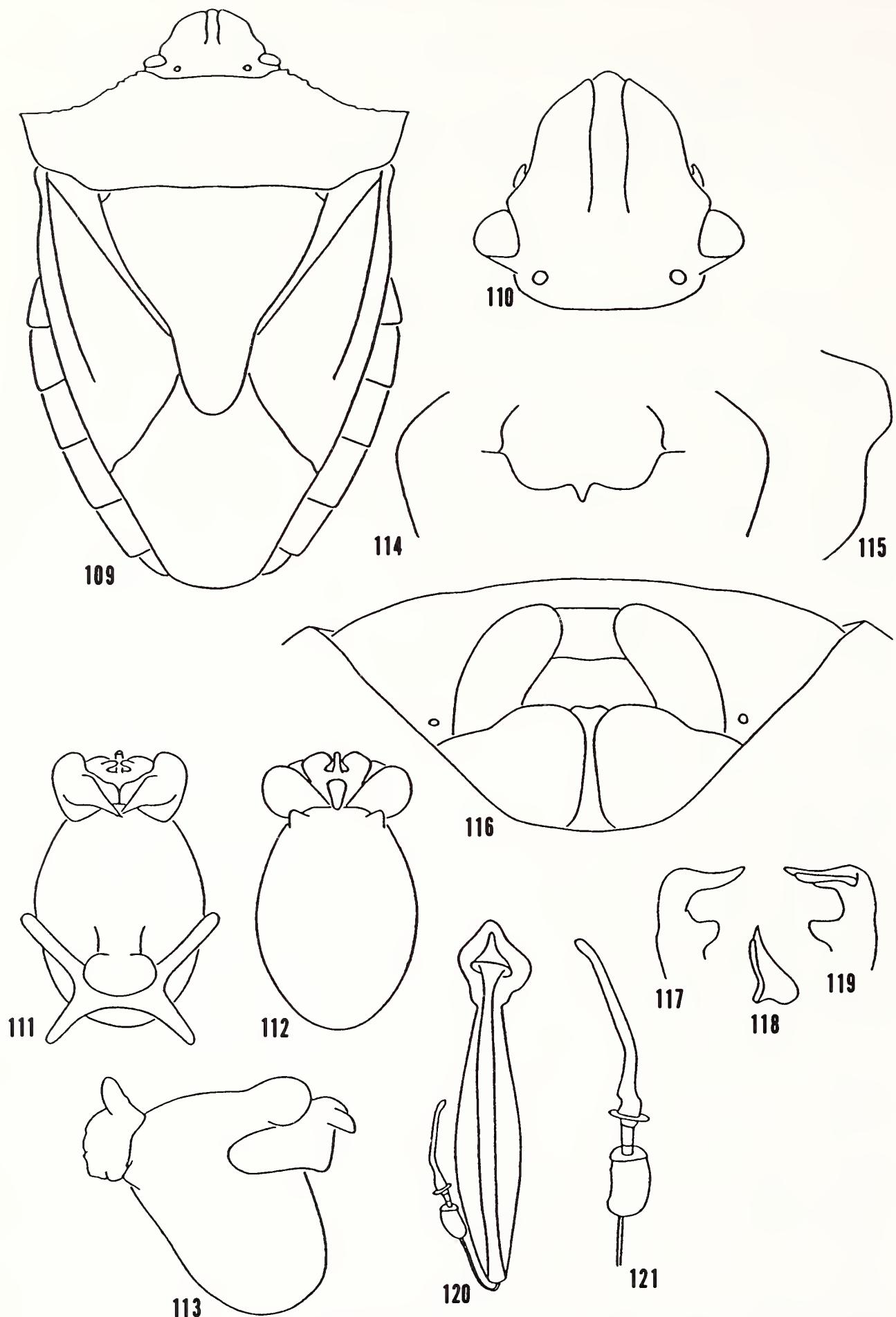
Subgenus *Argosoma* Rider

Thyanta (Argosoma) Rider [in Rider and Chapin, 1991:33].

Type species. *Pentatoma patruelis* Stål, 1859 (by original designation, Rider and Chapin, 1991).

Diagnosis. Punctuation coarse, sparse, dorsal surface appearing glossy. Anterolateral margins of pronotum straight to slightly concave, concolorous with surface of pronotum; humeral angles rounded to angulate, rarely spinose; pronotal cicatrices usually immaculate, sometimes faintly marked with fuscous in mesial angles. Posterior termination of each buccula evanescent.

Distal end of sclerotized rod with or without subapical swelling, never cone-shaped; spermathecal bulb globose; spermathecal duct below proximal flange slightly to greatly swollen and coiled, but never forming distinct cylindrical structure. Pygophoral



Figs. 109–121. *T. serratulata*. 109. Habitus. 110. Head. 111–113. Theca and related structures. 111. Ventral view. 112. Dorsal view. 113. Lateral view. 114, 115. Pygophore. 114. Caudal view. 115. Lateral view. 116. Genital plates, caudoventral view. 117–119. Right paramere. 117. Medial view. 118. Ectal view. 119. Lateral view. 120. Spermatheca. 121. Spermathecal pump.

opening relatively large; posterior margin usually broadly and shallowly U-shaped; posteroventral surface of pygophore produced into blunt chin-like protuberance. Each paramere acute to narrowly rounded apically, obtuse protuberance on shaft moderate in size to absent, possessing distinct dorsomedial concave surface; roughened, spiculate area on lateral surface of paramere usually circular, rarely linear (*T. boliviensis* Rider). Theca reniform, lacking dorsolateral protuberances; each lateral conjunctival lobe usually with single diverticulum; median penial lobes and penisfilum usually relatively small.

Comments. This is the largest subgenus, containing 20 species, and the included species are also the most difficult to identify. It is often necessary to examine the male genitalia in order to make accurate determinations. Within geographical areas, the internal female genitalia are usually distinctive.

This subgenus can be divided into two groups based primarily on the structure of the spermatheca. In *T. boliviensis*, *T. brasiliensis* Jensen-Haarup, *T. emarginata* Rider, and *T. hamulata* Rider, the sclerotized rod is somewhat elongate and lacks any subapical swelling. The remaining species have the sclerotized rod shorter and distinctly swollen subapically, becoming narrowed apically.

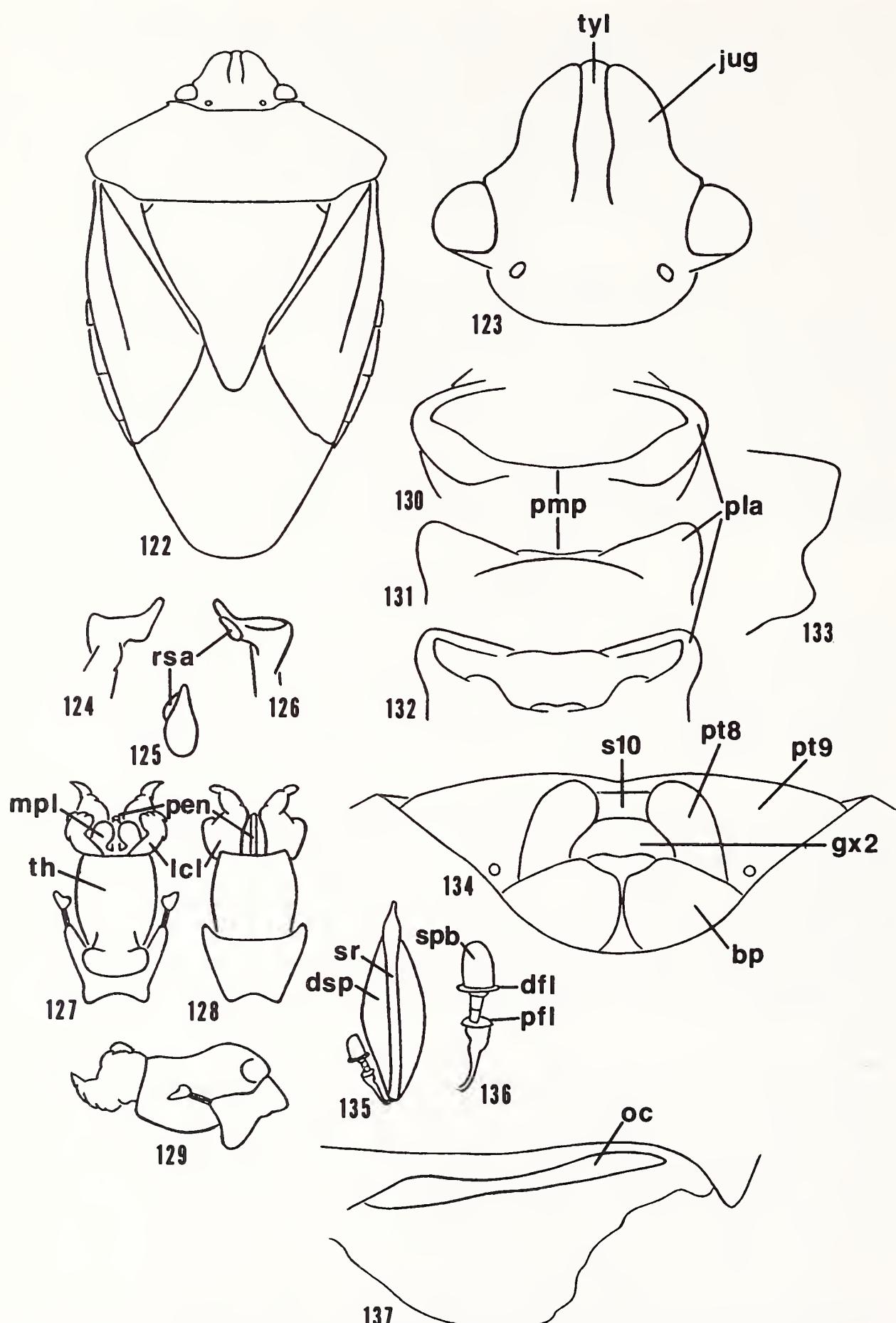
Thyanta (Argosoma) planifrons Ruckes
Figs. 122–137, Map 6

Thyanta planifrons Ruckes, 1956:59–61, fig. 3; Rolston and McDonald, 1984:fig. 33. *Thyanta casta* (of authors, not Stål): Uhler, 1894a:231 (part); Van Duzee, 1904:52, 54 (part); Kirkaldy, 1909:94 (part); Banks, 1910:90; Van Duzee, 1917:53 (part); Van Duzee, 1923:127–128; Torre-Bueno, 1939:231 (part); Froeschner, 1988:593 (part).

Diagnosis. Vertex of head relatively flat; lateral jugal margins subparallel for middle third of distance from eyes to apex (Fig. 123). Anterolateral margins of pronotum straight to slightly concave in dorsal view; humeral angles rounded, not or only slightly produced beyond base of adjacent corium (Fig. 122). Pronotal cicatrices immaculate. Rarely with reddish markings on pronotum. Ostiolar canal widening towards apex, wider distally than in middle (Fig. 137). Abdominal sternites lacking black markings, rarely extreme tip of posterolateral angles of abdominal sternites piceous.

Basal plates with mesial margins slightly convex in caudoventral view, separated basally; posterior margins slightly convex; posteromesial angles rounded to slightly emarginate (Fig. 134). Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 135); spermathecal duct only slightly swollen below proximal flange (Fig. 136). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view, slightly sinuous medially (Fig. 130); posterior margin weakly concave in ventral and dorsal views (Figs. 131, 132); posteroventral surface deeply emarginate in lateral view (Fig. 133). Apex of each paramere nearly acute from both medial and ectal views (Figs. 124, 125); concave surface oriented more dorsad than mediad; roughened spiculate area on lateral surface elongate-circular (Fig. 126). Each lateral conjunctival lobe of aedeagus with 1 or 2 non-sclerotized diverticula (Fig. 129); dorsomedial lobe apparently absent (Fig. 128); median penial lobes spatulate (Fig. 127).

Types. Ruckes (1956) described *T. planifrons* from 6♂♂ and 7♀♀ specimens. The



Figs. 122–137. *T. planifrons*. 122. Habitus. 123. Head. 124–126. Right paramere. 124. Medial view. 125. Ectal view. 126. Lateral view. 127–129. Theca and related structures. 127. Ventral view. 128. Dorsal view. 129. Lateral view. 130–133. Pygophore. 130. Caudal view. 131. Ventral view. 132. Dorsal view. 133. Lateral view. 134. Genital plates, caudoventral view.

holotype, which is from 10 miles west of Alamos, Sonora, Mexico, and all 12 paratypes were examined. The holotype is housed in the American Museum of Natural History (New York).

Distribution. Southwestern U.S. and northwestern Mexico (Map 6).

Specimens examined. 535 specimens collected during every month except February; deposited in AMNH, ASUT, CAS, DAR, DBT, EGER, FSCA, LACM, LHR, MSU, TAMU, UAT, UCB, UCR, UIM, UMC, UNAM, USNM. UNITED STATES: Arizona: *Cochise*: Portal; 5 mi W Portal, SWRS. *Pima*: Baboquivari Mountains, Browns Canyon; Organ Pipe Cactus Natl Monument. *Santa Cruz*: Madera Canyon. California: Imperial. *Riverside*: Bautista Canyon; Deep Canyon; Palm Springs. *San Diego*: Borego Valley.

MÉXICO: Canipole; 10 mi SW Canipole; Carmen Island, Porto Ballandra; Puntbunda. *Baja California Norte*: Bahía de los Angeles; Cataviña; 10 mi S Cataviña; 8 km N Punta Prieta; 15 mi N Punta Prieta; San Felipe; 12 mi S San Felipe; 15 mi S San Felipe; San Fernando. *Baja California Sur*: Bahía Concepción; Cabo San Lucas; 3 mi W Caduaño; Comondu; 10 mi SW Comondu; 20 mi N Comondu; 23 mi S Comondu; 14 mi S El Arco Mine; 28 mi S El Arco Mine; 6.5 mi S, 1 mi E El Pescadero; 15 mi N El Rufugio; El Sargento; El Triunfo; 2 mi NW El Triunfo; 6 mi N El Triunfo; Escondido Bay; 3 mi N Guajademi; Hamilton Ranch; 1 km SW Huatamote; Isla Annelvo; Isla Catalán; Isla Cerralvo; Isla Espírita Santo; La Paz; 2 mi S La Paz; 5 mi SW La Paz; 7 mi SW La Paz; 13 mi W La Paz; 14 mi W La Paz; 15 mi W La Paz; 20 mi NW La Paz; 21 mi W La Paz; 23 km W La Paz; 25 mi W La Paz; 26 mi W La Paz; 33.5 km NW La Paz; La Purisima; Las Animas; Las Barracas; Las Tinajitas; 2 mi SE Las Virgenes; 1 mi E Migriño; Miraflores; 5 mi S Miraflores; 4 mi S Mission San Javier; Mulegé; 1 mi S Mulegé; 2 mi S Rancho de la Ventana; 2.6 mi E San Antonio; 3 mi SW San Antonio; 5 mi S San Antonio; 5 mi W San Bartolo; San Domingo; 15 mi S San Domingo; 15 mi N San Ignacio; 27 mi W San Ignacio; San José del Cabo; 2 km W San José del Cabo; 10 mi SW San José del Cabo; 1.3 mi N San José Viejo; 3 mi N San José Viejo; 5 mi S San Miguel; 3 km S, 1.3 km E San Pedro; 3.5 mi NE San Pedro; San Sebastian; 5 mi SE Santa Rosalía; 12 mi S Santa Rosalía; Santiago; 6 mi SW Santiago; Sierra de la Laguna; Todos Santos; 4 mi N Todos Santos; 28–29 km N Todos Santos; Venancio; 30 mi E V. Insurgentes. *Sinaloa*: Mazatlán; 34 mi N Mazatlán. *Sonora*: 10 mi W Alamos; Bahía de los San Carlos; Bahía Kino; 20 mi NNE Ciudad Obregón; El Desemboque; Guaymas, Punta San Antonio; Hermosillo; La Choya; Minas Nuevas; 15 km S Navojoa; 15 mi N Navojoa; San Bernardino, Río Mayo; 20 mi S Sonoyta; Tecoripa; Tiburón Island; Yavaros.

Comments. *Thyanta planifrons* can be separated from all other congeners by the distal widening of the ostiolar canal. Also, the vertex of the head is relatively flat, a character for which this species was named.



135. Spermatheca. 136. Spermathecal pump. 137. Ostiolar canal. Symbols: bp, basal plate; dfl, distal flange; dsp, dilation of spermatheca: gx2, second gonacoxae; jug, juga; lcl, lateral conjunctival lobe; mpl, median penial lobe; oc, ostiolar canal; pen, penisfilum; pfl, proximal flange; pla, posterolateral angle of pygophore; pmp, posterior margin of pygophore; pt8, eighth paratergite; pt9, ninth paratergite; rsa, roughened spiculate area on lateral surface of paramere; spb, spermathecal bulb; sr, sclerotized rod; s10, tenth sternite; th, theca; tyl, tylus.

The widening of the ostiolar canal is unusual, but not unique. It also occurs in *Tepa jugosa* Van Duzee, a species with essentially the same distribution as *Thyanta planifrons*. The biological significance of this condition is not known, but would make an interesting study. This is the first record of this species from the United States.

Thyanta (Argosoma) maculata (Fabricius)
Figs. 138–152, Map 8

Cimex maculatus Fabricius, 1775:704.

Thyanta casta Stål, 1862b:104; Stål, 1872:35; Uhler, 1876:7; Distant, 1880:66; Uhler, 1886:7; Uhler, 1894a:231 (part); Lethierry and Severin, 1893:147; Kirkaldy, 1909:94 (part); Malloch, 1919:217, fig. 74; Torre-Bueno, 1939:231 (part); Froeschner, 1988:593 (part). **NEW SYNONYMY.**

Euschistus castus: Walker, 1867:244.

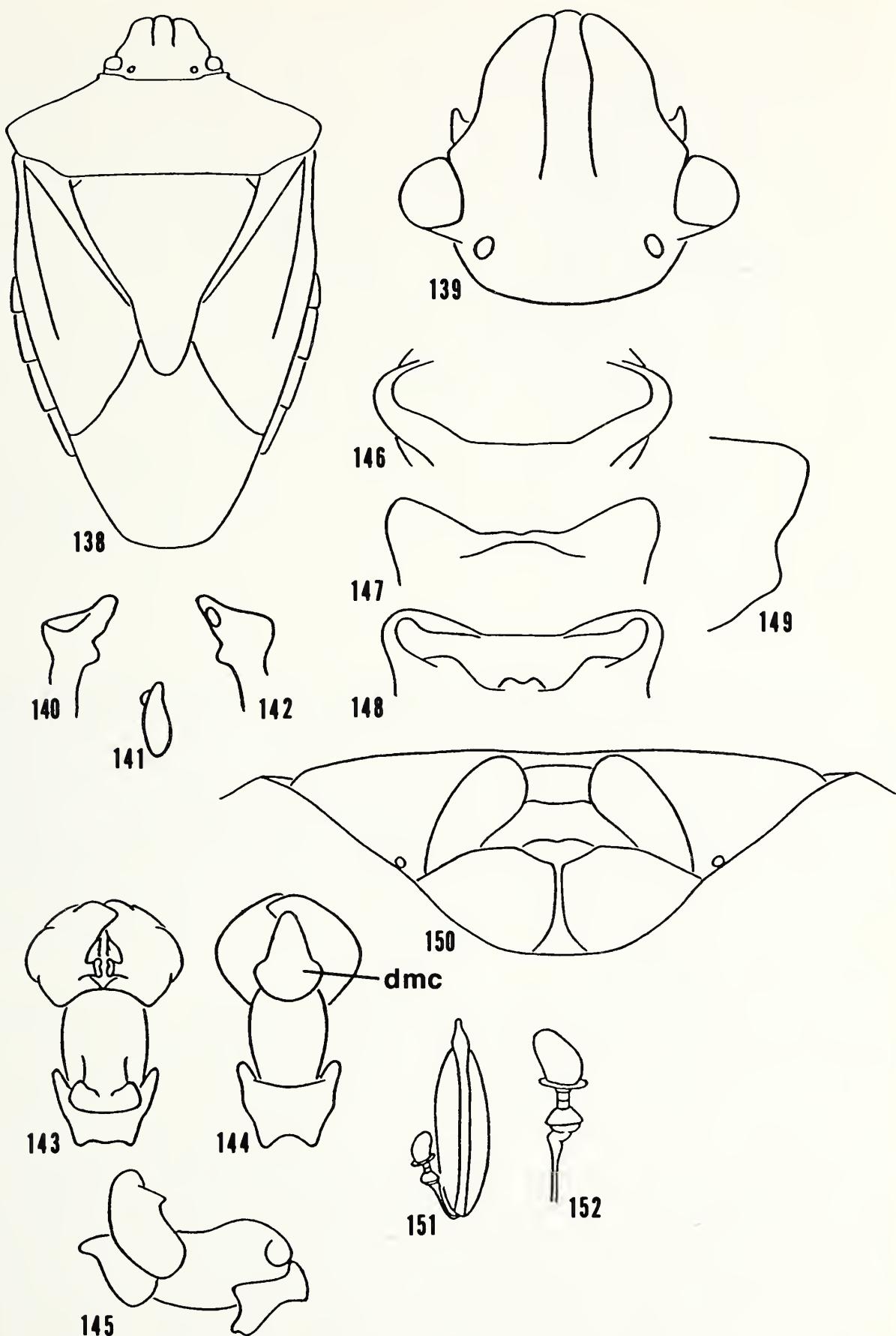
Thyanta maculata: Stål, 1872:35; Distant, 1893:334; Lethierry and Severin, 1893:148; Kirkaldy, 1909:94; Rolston and McDonald, 1984:fig. 29.

Diagnosis. General color green to brown; often with varying amounts of reddish on pronotum between humeral angles, often forming two oblong spots, one on each side of middle. Apices of scutellum and coria occasionally rubiginous.

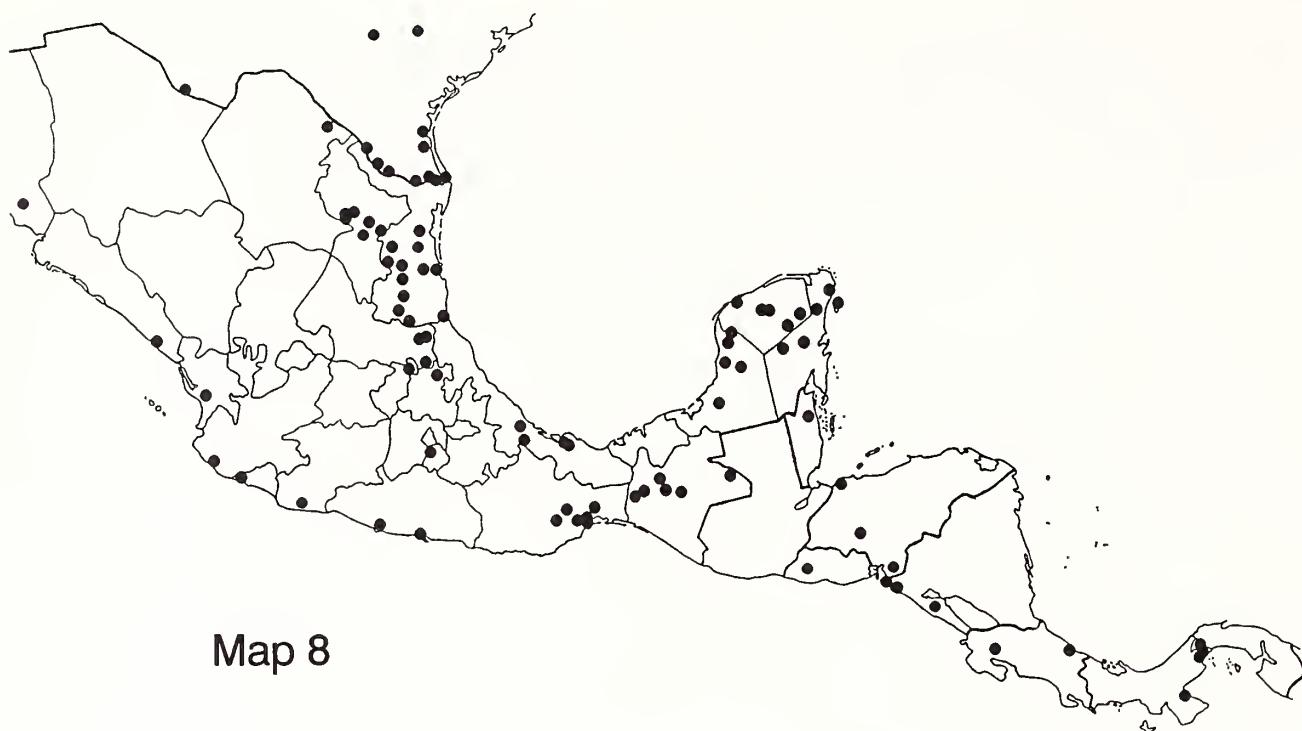
Lateral jugal margins sinuous, not quite parallel (Fig. 139). Anterolateral margins of pronotum nearly straight in dorsal view; humeral angles rounded to angulate, usually produced beyond base of adjacent corium by less than half width of eye (Fig. 138); pronotal cicatrices immaculate. Ostiolar canals acuminate apically. Postero-lateral angles of abdominal sternites piceous, sometimes only minutely so. Postspiracular spots usually absent, though sometimes present in brown form.

Basal plates with mesial margins slightly convex in caudoventral view, separated basally; posterior margins convex; posteromesial angles slightly emarginate (Fig. 150). Sclerotized rod swollen subapically, narrowed apically (Fig. 151); spermathecal duct moderately swollen and coiled below proximal flange (Fig. 152). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 146); lateral angles prominent in ventral and dorsal views, chin-like protuberance relatively small (Figs. 147, 148); emarginate below middle in lateral view (Fig. 149). Apex of each paramere obtusely rounded in ectal view (Fig. 141); concave surface oriented more mediad than dorsad, shaft rather robust with small medial protuberance (Fig. 140); roughened spiculate area on lateral surface circular (Fig. 142). Aedeagus with lateral and dorsomedial conjunctival lobes large (Fig. 144), each lateral lobe with single, slightly sclerotized diverticulum (Fig. 143); penisfilum and median penial lobes obscured by conjunctiva (Fig. 145).

Types. Fabricius (1775) described *Cimex maculatus* from "America" without designating a holotype or paratypes. It is not possible to determine from his original description how many specimens he examined, but evidently he had more than one, as he mentions a variation. Only one syntype was located and examined. It is a ♀ in poor condition (apex of abdomen destroyed, left forewing missing, etc.), but it does possess the characters that define this species. It has the following label data: (a) "maculatus" (b) "Thyanta maculata F., and is here designated the lectotype. This specimen is housed in the Universitetets Zoologiske Museum (Copenhagen, Denmark).



Figs. 138–152. *T. maculata*. 138. Habitus. 139. Head. 140–142. Right paramere. 140. Medial view. 141. Ectal view. 142. Lateral view. 143–145. Theca and related structures. 143. Ventral view. 144. Dorsal view. 145. Lateral view. 146–149. Pygophore. 146. Caudal view. 147. Ventral view. 148. Dorsal view. 149. Lateral view. 150. Genital plates, caudoventral view. 151. Spermatheca. 152. Spermathecal pump. Symbol: dmc, dorsomedial conjunctival lobe.



Map 8

Map 8. *T. maculata*.

Stål (1862b) described *T. casta* from Mexico without designating a holotype or paratypes. One syntype, a ♀, was located and examined. Although it lacks the reddish markings that many specimens of *T. maculata* possess, it differs structurally in no significant manner from *T. maculata*. Because it is not possible to determine the number of specimens upon which Stål's description was based, the syntype specimen is designated the lectotype. It is labeled as follows: (a) "Mexico Coll. Signoret." (b) "Casta det. Stal" (c) "TYPE" (d) "Coll. Nat.-Mus. Wien" (e) "Thyanta casta STAL." The lectotype is housed in the Naturhistorisches Museum (Vienna, Austria).

Distribution. Southern Texas southward through Mexico and Central America to southern Panama (Map 8).

Specimens examined. 499 specimens collected during every month of the year; deposited in AMNH, ARH, BMNH, CAS, CNC, CUC, DAR, DBT, EGER, ENGL, FSCA, INHS, LACM, LHR, LSU, MSU, MSUE, OSU, OSUC, SMEK, TAMU, UAT, UCB, UCS, UGA, UMAA, UNAM, UNSM, UUSL. UNITED STATES: Texas: Brazos. *Burnet*: Inks Lake State Park. *Cameron*: Boca Chica; 3 mi SW Boca Chica; Brownsville; Harlingen; Sabal Palm Grove Sanctuary near Southmost. *Hidalgo*: Bentsen Rio Grande Valley State Park; Edinburg; McAllen; Progresso; Santa Ana Natl Wildlife Refuge. *Kleburg*: Kingsville. *Presidio*: Presidio. *San Patricio*: Corpus Christi Lake State Park; Nueces River, 5 mi SW Mathis. *Starr*: Falcon Heights; 4–15 mi N Roma. *Webb*: Laredo. *Zapata*: 1 mi E Falcon Lake; Falcon State Park.

MÉXICO: *Campeche*: Calkiní; 12 mi E Campeche; El Remate; Escárcega; Ruinas Edzna; km 54, Carr. Campeche-Merida. *Chiapas*: Aguacero, 16 km W Ocozocoautla; Chicoasen Dam Area; 13 mi W Cintalpa; 2 mi N Ocozcoautla; Ruinas Bonampak; San Cristóbal de las Casas; Santo Domingo, 15 mi SE Simojovel; Simojovel; Suchiapa. *Coahuila*: Arroyo de la Zorra. *Colima*: 2 mi N Manzanillo. *Guerrero*: Acapulco de Juárez; 3.7 mi E Marquelia; Tecpan de Galeana. *Hidalgo*: Otongo. *Jalisco*:

Chamela; Estacion de Biología Chamela. *Michoacán*: Acahuato. *Morelos*: 4.4 mi E Cuernavaca; Villa de Ayala. *Nayarit*: 15 km E San Blas. *Nuevo León*: Apodaca; 3 mi E Galeana; 16 mi S Linares, Anegade Arroyo; 4.1 mi S Montemorelos; Monterrey; 4 mi S Monterrey; 5 mi S Monterrey, Valle Alto; 6 mi S Monterrey. *Oaxaca*: 2.7 mi NW El Camaron; El Charquito; 6 mi W Jalapa del Marques; 8 mi N La Ventosa; Puerto Escondido; Salina Cruz; Tehuantepec; 11 mi W Tehuantepec; 12 mi W Tehuantepec; 13 km W Tehuantepec; 44 mi W Tehuantepec; 2.1 mi NW Totolapán. *Querétaro*: 1 mi NW Ayutla. *Quintana Roo*: 1 km N Coba; 20 km N Felipe Carrillo Puerto; 54 mi SE Peto; San Isidro Puerto Morelos; 2 mi NE San Miguel; River El Ramonal; Rancho El 24; Xcun Nuevo; km 146, Carr. Chetumal-Cancún; km 146, Carr. Chetumal-Pto Juarez. *San Luis Potosí*: 12 mi S Ciudad Mante; Ciudad Valles; 11 km E Ciudad Valles; El Banito; El Salto Falls; Tamazunchale; 5 mi N Tamazunchale; 30 mi S Tamazunchale; Tamuín. *Sinaloa*: 1 mi NW El Venadillo; Mazatlán; 5 mi N Mazatlán; 10 mi S Mazatlán; Presidio River near Caton. *Sonora*: 7 mi W Alamos. *Tamaulipas*: Abasolo; Antiguo Morelos; Bocatoma, Ciudad Victoria; 6 mi S Ciudad Victoria; 25 mi S Ciudad Victoria; 5 mi SSE Gómez Fariás; 6 mi S Gómez Fariás; Guemes; Hidalgo; 8 mi N Jiménez; La Pesca; Llera; 5 mi N Llera; 13 km E Magiscatzin; Punta Piedras; Río Corona, 30 km N Ciudad Victoria; San Fernando; 6.2 mi S San Fernando; 25 mi SE San Fernando; Tampico; Villagran. *Veracruz*: Córdoba; Cotaxtla; Cotaxtla Expt Stn; Cuitlahuac; Lake Catemaco Area; Ojo de Agui; Puente Nacionale; San Andres Tuxtla; 5 mi S Santiago Tuxtla; Tolome; 10 mi W Veracruz. *Yucatan*: Chichén Itzá; Piste; Progreso; 12 km N Quintana Roo, Hwy 295; 13 mi E Valladolid; 13.3 mi S Valladolid; 1 km S Xcalacoop; 10 km N Xcalacoop.

BELIZE: *Belize*: 12 mi NW Belize City. EL SALVADOR: Ruinas San Andres. HONDURAS: Choluteca. *Comayagua*: 5 mi NW Comayagua. *Cortes*: Puerto Cortés. NICARAGUA: Chinandega; N side Cosgóina Volcano, Gulf of Fonseca. *Managua*: Jiloa; Masachapa. COSTA RICA: Limón. *Guanacaste*: La Pacifica, near Cañas. PANAMA: Chitré; La Chorrera. *Canal Zone*: Barro Colorado Island; Base of Cerro Galera. DARIEN: Santa Fe.

Comments. *Thyanta maculata* was originally distinguished from other congeners by the presence of two oblong reddish macules, one on each side of the middle of the pronotum. Fewer than half the specimens of *T. maculata* actually exhibit this character. Also, several other species of *Thyanta* are known to have the same type of maculation in at least some specimens (*T. pseudocasta* Blatchley, *T. brasiliensis* Jensen-Haarup, *T. curvata* Rider).

Thyanta maculata can be separated from other congeners except *T. pseudocasta* by the structure of the male genitalia. Each paramere is rather robust with the apex rounded, and the dorsomedial concave surface is oriented more mediad than dorsad. *Thyanta pseudocasta* has very similar male genitalia, but the aedeagus is slightly different. The aedeagus of *T. maculata* has a dorsomedial conjunctival lobe, while the same structure is apparently absent in *T. pseudocasta*. The two forms can usually be separated based upon the prominence of the humeral angles. Each humeral angle in *T. maculata* is usually produced beyond the base of the adjacent corium by less than half the width of an eye, while in *T. pseudocasta* each humeral angle usually protrudes beyond the corium by more than half the width of an eye.

Thyanta maculata is a variable species, especially with respect to size and coloration. For example, specimens from the Yucatan peninsula of Mexico average much

smaller than specimens from other parts of the range, but they do not differ in any other significant manner.

Thyanta (Argosoma) vadosa Rider
Figs. 153–167

Thyanta (Argosoma) vadosa Rider [in Rider and Chapin, 1991:55].

Diagnosis. Ovate; dorsal surface green to pale brown; some interstitial areas of pronotum, scutellum, and elytra pale yellow; sometimes marked with reddish-purple between humeral angles, on apex of scutellum, and on tylus and vertex of head. Punctures green to pale brown.

Apex of head arcuately rounded; lateral jugal margins sinuous, subparallel for middle third of distance from eyes to apex (Fig. 154); vertex convex. Anterolateral margins of pronotum in dorsal view straight to slightly concave; humeral angles rounded to angulate, often projecting beyond base of adjacent corium (Fig. 153). Pronotal cicatrices immaculate. Punctuation becoming sparse medially, central portion of pronotal disc subcalloused. Posterior third of pronotum often darker than rest of pronotum. Posterolateral angles of connexival segments piceous. Ostiolar canals acuminate apically. Postspiracular black spots usually absent (except in brown form); posterolateral angles of abdominal sternites piceous, sometimes only minutely so.

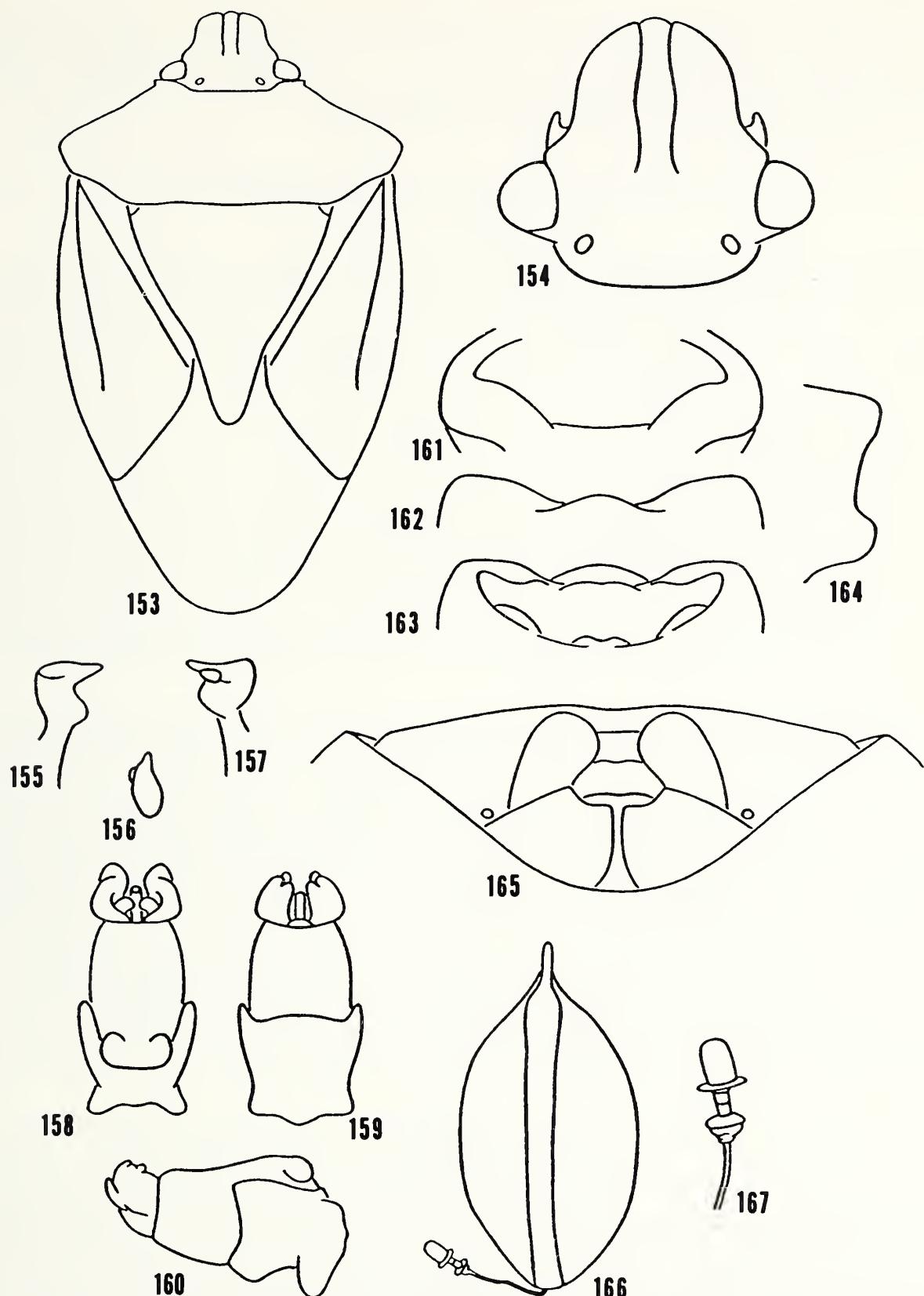
Mesial margins of basal plates straight to slightly convex in caudoventral view; posterior margins slightly convex; posteromesial angles broadly and shallowly emarginate, lateral sides of concavity resulting from excavations in basal plates divergent, not parallel (Fig. 165). Distal end of sclerotized rod swollen subapically, narrowed apically (Fig. 166); spermathecal duct moderately swollen and coiled below proximal flange (Fig. 167). Posterior margin of pygophore in caudal view broadly U-shaped, medial portion straight to slightly convex (Fig. 161); chin-like protuberance appearing relatively narrow in ventral and dorsal views (Figs. 162, 163); pygophore deeply emarginate in lateral view (Fig. 164). Each paramere with concave surface oriented mediad; from ectal view, parameral apex angling gently mesad (Fig. 156); from medial view, apex acutely angulate, straight or bending slightly ventrad (Fig. 155); roughened spiculate area on lateral surface circular (Fig. 157). Each lateral conjunctival lobe of aedeagus without sclerotized diverticula (Fig. 160); dorsomedial conjunctival lobe weakly developed (Fig. 159); median penial lobes spatulate (Fig. 158).

Types. Rider [in Rider and Chapin, 1991] described *T. vadosa* from 5♂♂ and 5♀♀ female specimens. The holotype ♂ was examined and is deposited in the Canadian National Collection, Ottawa, Canada.

Distribution. Trinidad and Tobago; Venezuela.

Specimens examined. 9 specimens collected in January, February, March, May, July, September, and October, deposited in AMNH, ARH, CNC, USNM. BRITISH WEST INDIES: Tobago. *Trinidad*: Bejucal; Curepe, Santa Margarita Circular Road; Saint Augustine; Santa Margarita Hill.

Comments. In general appearance this is a typical species of the *maculata* group. The shape of the emargination in the posteromesial angle of each basal plate of the female is distinctive. *Thyanta emarginata* and *T. excavata* both have the posteromesial angles of the basal plates deeply emarginate, but the sides of the resulting concavity are nearly parallel, not divergent as in *T. vadosa*. The male genitalia are



Figs. 153–167. *T. vadosa*. 153. Habitus. 154. Head. 155–157. Right paramere. 155. Medial view. 156. Ectal view. 157. Lateral view. 158–160. Theca and related structures. 158. Ventral view. 159. Dorsal view. 160. Lateral view. 161–164. Pygophore. 161. Caudal view. 162. Ventral view. 163. Dorsal view. 164. Lateral view. 165. Genital plates, caudoventral view. 166. Spermatheca. 167. Spermathecal pump.

also distinctive. *Thyanta vadosa* is the only species with the apex of each paramere not only acutely angulate (almost acuminate) but also straight or bending slightly ventrad. In the *maculata* group, all other species having the apex of each paramere acute to acuminate also have the apex bending dorsad.

Thyanta (Argosoma) pseudocasta Blatchley
Figs. 168–182, Map 9

Thyanta pseudocasta Blatchley, 1926:114, 120; Blatchley, 1930:64; Torre-Bueno, 1939:230; Rolston and McDonald, 1984:figs. 26, 34; Froeschner, 1988:594.

Thyanta casta (of authors, not Stål): Barber, 1914:523; Van Duzee, 1917:53 (part); Torre-Bueno, 1939:231 (part); Froeschner, 1988:593 (part).

Diagnosis. General color pale green to pale brown, sometimes with anterior half of pronotum reddish.

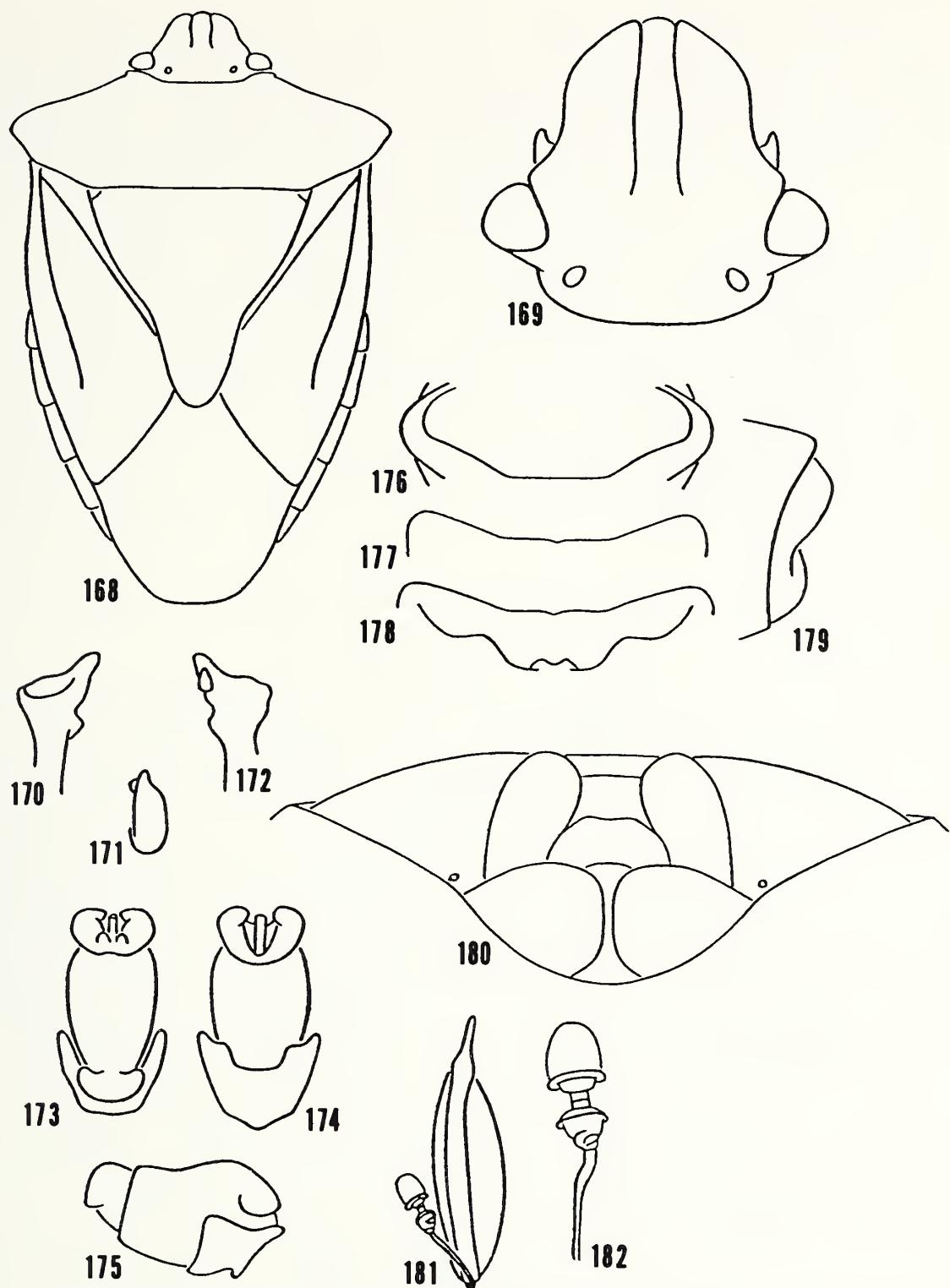
Lateral jugal margins subparallel for middle third of distance from eyes to apex (Fig. 169). Anterolateral margins of pronotum nearly straight in dorsal view; humeral angles prominent, produced beyond base of adjacent corium by more than half width of eye, rounded to angulate (Fig. 168). Pronotal cicatrices immaculate. Ostiolar canals acuminate apically. Posterolateral angles of abdominal sternites piceous, sometimes only minutely so. Postspiracular black spots usually absent, sometimes present in brown form.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins evenly convex, posteromesial angles rounded (Fig. 180). Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 181); spermathecal duct with small amount of swelling and coiling below proximal flange (Fig. 182). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, slightly sinuous medially in caudal, ventral, and dorsal views (Figs. 176–178); pygophore emarginate in lateral view (Fig. 179). Apex of each paramere from ectal view nearly acute (Fig. 171); from medial view narrowly rounded; concave surface facing mediad (Fig. 170); roughened spiculate area on lateral surface circular (Fig. 172). Aedeagus with each lateral conjunctival lobe apparently lacking sclerotized diverticula (Fig. 175); dorsomedial lobe apparently absent (Fig. 174); median penial lobes relatively small (Fig. 173).

Types. Blatchley (1926) described *T. pseudocasta* without designating a holotype or paratypes. In 1930, however, he designated 1♂ specimen as “type” (lectotype). He did not mention any of the other syntypes. Although actual paralectotype designations were not made, according to the International Code of Zoological Nomenclature (Ride et al., 1985, sect. 74a[iv]), once the lectotype is designated the remaining syntypes automatically become paralectotypes. Accordingly, no such designations are needed, but labels have been added to the specimens to indicate their actual status.

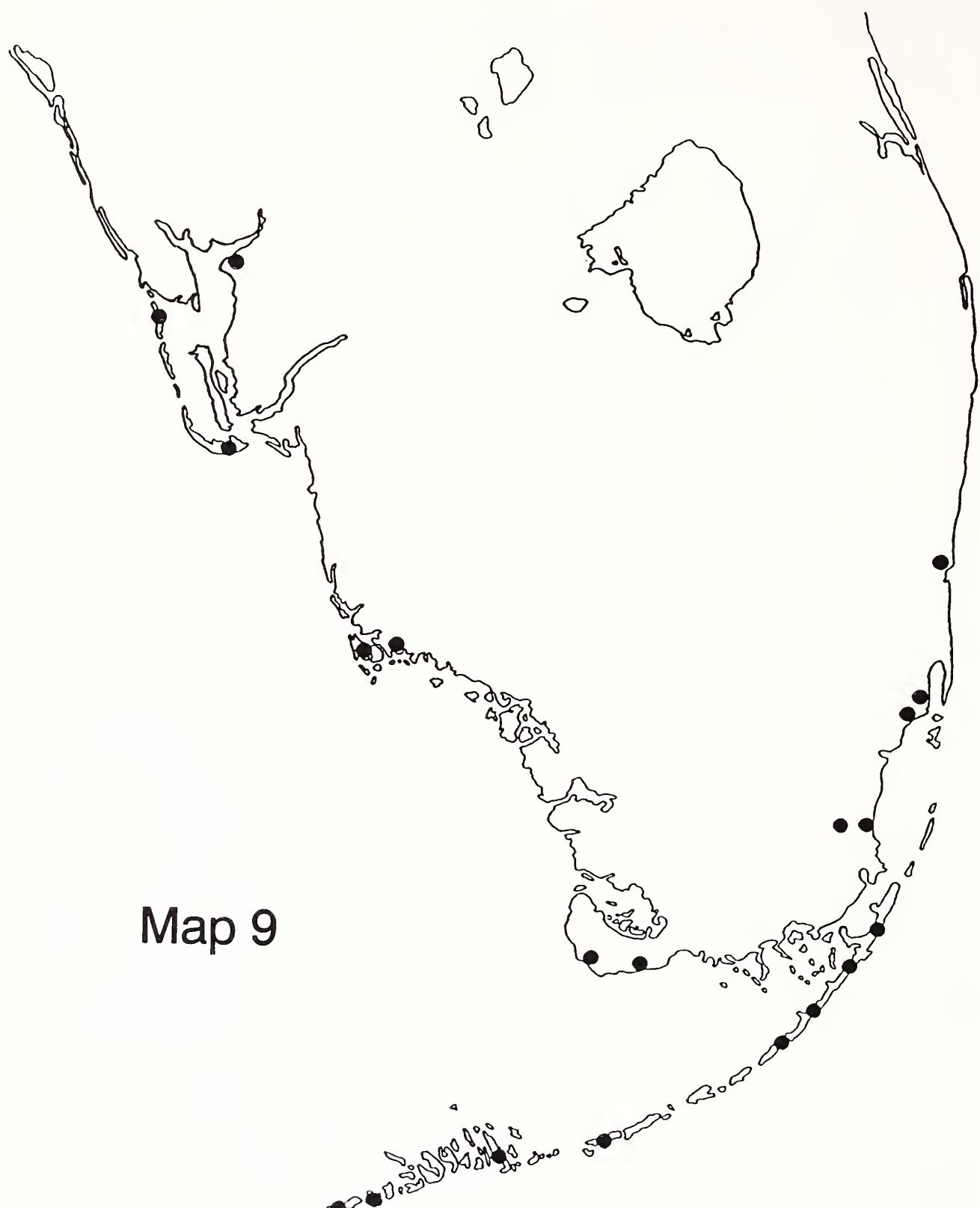
Regrettably, the ♂ lectotype is in deplorable condition; all that remains is the head and pronotum. It has the following label data: (a) “Miami Fla. W. S. B. Coll. 3-11-24” (b) “Purdue Blatchley collection” (c) “TYPE” (d) “*Thyanta pseudocasta* Blatchley.” The lectotype is deposited in the Purdue University Collection (W. Lafayette, IN).

Ten additional specimens that are believed to be part of the original syntype series



Figs. 168–182. *T. pseudocasta*. 168. Habitus. 169. Head. 170–172. Right paramere. 170. Medial view. 171. Ectal view. 172. Lateral view. 173–175. Theca and related structures. 173. Ventral view. 174. Dorsal view. 175. Lateral view. 176–179. Pygophore. 176. Caudal view. 177. Ventral view. 178. Dorsal view. 179. Lateral view. 180. Genital plates, caudoventral view. 181. Spermatheca. 182. Spermathecal pump.

have been located: 1♂ and 2♀♀ labeled (a) "Miami Fla. W. S. B. Coll. 3-11-24" (b) "Purdue Blatchley collection" (AMNH, PUL), except 1♀ labeled (c) "Thyanta pseudocasta Blatchley" (LSU); 3♂♂ and 2♀♀ labeled (a) "C. Sable Fla. W. S. B. Coll. 2-23-19" (b) "Purdue Blatchley collection" (PUL), except 1♂ labeled (b) "H G Barber Colln1950" (USNM), and 1♂ and 1♀ labeled "4-5-25" (AMNH); 1♂ labeled (a) "K.



Map 9

Map 9. *T. pseudocasta*.

West Fla. W. S. B. Coll. 3-2-19" (b) "Purdue Blatchley collection" (PUL); and 1♂ labeled (a) "Coxam Fla. W. S. B. Coll. 3-8-21" (b) "Purdue Blatchley collection" (LSU). The lectotype and all but one paralectotype were examined.

Distribution. Southern Florida (Map 9).

Specimens examined. 153 specimens collected during every month of the year; deposited in AMNH, ARH, CAS, CNC, CU, DAR, DBT, EGER, FSCA, LHR, LSU,

MSU, PUL, SMEK, UCB, UCS, UGA, UMC, USNM. UNITED STATES: Florida: Caxambus. *Broward*: Fort Lauderdale. *Charlotte*: Charlotte Harbor Area, Little Gasparillo Island; Punta Gorda. *Collier*: Marco Island; Royal Palm Park. *Dade*: Biscayne Bay; Coral Gables; Homestead; Miami. *Lee*: Sannibel Island. *Monroe*: Big Pine Key; Cape Sable; Everglades Natl Park; Key Largo; Key West; Marathon Key; Plantation Key; Stock Island; Tavernier Key; 9 mi NW Key Largo.

Comments. *Thyanta pseudocasta* can be separated from all congeners except *T. maculata* because the concave surface of its paramere is oriented more mediad than dorsad. *Thyanta pseudocasta* may actually be a subspecies of *T. maculata*. The male genitalia of the two species are very similar, but there are some differences in the aedeagus. *Thyanta maculata* has a prominent dorsomedial conjunctival lobe, while this structure is apparently absent in *T. pseudocasta*. Also, the humeral angles are more prominent in *T. pseudocasta*. Because these species represent reproductively isolated populations, a conservative approach is taken, and they are retained as full species.

Thyanta (Argosoma) obsoleta (Dallas)
Figs. 183–197, Map 7

Pentatoma obsoleta Dallas, 1851:251; Walker, 1867:289.

Thyanta obsoleta: Lethierry and Severin, 1893:148; Kirkaldy, 1909:94.

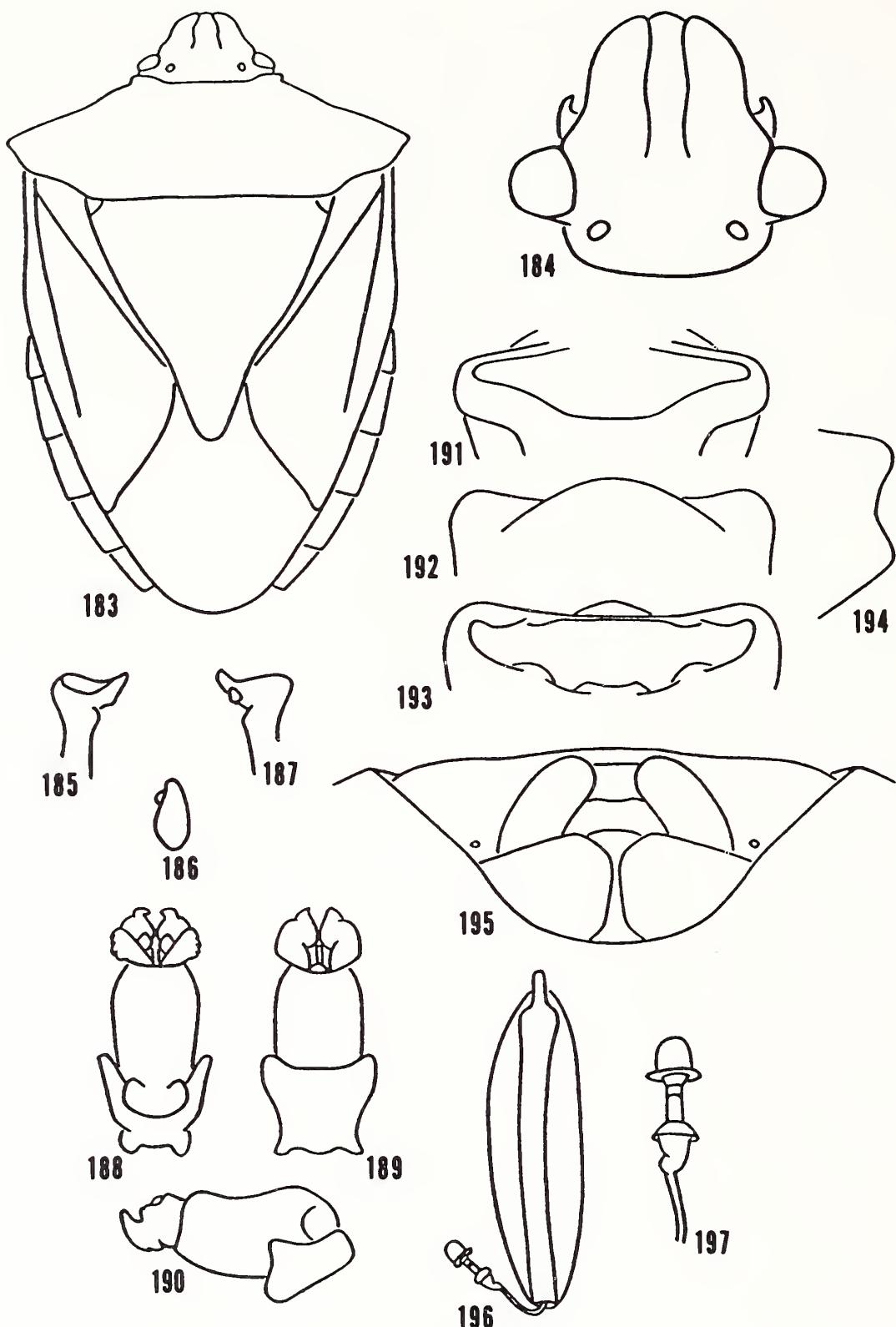
Thyanta casta (of authors, not Stål): Van Duzee, 1904:52, 54 (part); Kirkaldy, 1909: 94 (part); Barber, 1923:12; Barber, 1939:292–293.

Diagnosis. Coloration green to pale brown, often with transhumeral reddish markings that sometimes form two oblong spots, one each side of middle.

Lateral jugal margins subparallel for middle third of distance from eyes to apex (Fig. 184). Anterolateral margins of pronotum straight to slightly concave in dorsal view; humeral angles rounded to angulate, usually produced beyond base of adjacent corium by about half width of eye (Fig. 183). Pronotal cicatrices immaculate. Ostiolar canals acuminate apically. Posterolateral abdominal angles piceous; postspiracular black spots usually absent, sometimes evident in brown form.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins slightly convex; posteromesial angles broadly rounded (Fig. 195). Sclerotized rod swollen subapically, narrowed apically (Fig. 196); spermathecal duct moderately swollen below proximal flange with only slight amount of coiling (Fig. 197). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 191); in lateral view concave (Fig. 194); posterior margin only slightly concave in dorsal view, posterolateral angles not prominent (Fig. 193); posterovenentral surface distinctly produced into blunt chin-like protuberance in ventral view (Fig. 192). Each paramere apically rounded in ectal view (Fig. 186); narrowly rounded from medial view, curving dorsad; concave surface oriented more dorsad than mediad (Fig. 185); roughened spiculate area on lateral surface circular (Fig. 187). Each lateral conjunctival lobe of aedeagus with 1 or 2 subacute diverticula (Fig. 190), dorsomedial lobe reduced (Fig. 189); median penial lobes large, spatulate (Fig. 188); penisfilum reduced.

Types. Dallas (1851) described *Pentatoma obsoleta* from Jamaica without designating a holotype or paratypes, and it is not possible to determine the number of specimens upon which he based his description. Only 1♀ syntype was located, and



Figs. 183–197. *T. obsoleta*. 183. Habitus. 184. Head. 185–187. Right paramere. 185. Medial view. 186. Ectal view. 187. Lateral view. 188–190. Theca and related structures. 188. Ventral view. 189. Dorsal view. 190. Lateral view. 191–194. Pygophore. 191. Caudal view. 192. Ventral view. 193. Dorsal view. 194. Lateral view. 195. Genital plates, caudoventral view. 196. Spermatheca. 197. Spermathecal pump.

it is here designated the lectotype. It is labeled (a) "Jamaica" [dorsal surface], "45 1111" [ventral surface] (b) "Type" (c) "35. *Pentatoma obsoleta*." The lectotype, which is housed in the British Museum of Natural History (London), was examined.

Distribution. Greater Antilles (Map 7).

Specimens examined. 60 specimens collected during every month of the year except September; deposited in AMNH, ARH, BMNH, CAS, CNC, CU, DAR, DBT, ENGL, LHR, OSU, SMEK, UAT, USNM. BAHAMA ISLANDS: San Salvador Island. CUBA: *Ciudad de la Habana*: El Cano; Havana. *Guantánamo*: Guantánamo Bay Naval Base, Caravella Point. *Santiago de Cuba*: Daiquirí; Jarahueca. JAMAICA: Bluefields; Christiana; Mona, near Kingston; St. Andrew Ferry; Try. Duncans. *St. Andrew*: Bamboo Lodge near Irish Town. *Westmorland*: Negril, Negrillo Cottages. HAITI: Diquini. *Ouest*: Port-au-Prince. DOMINICAN REPUBLIC: Los Hidalgos; 8 mi up Macorís River, Santo Domingo. *Distrito Nacional*: La Victoria; Santo Domingo City. *Peravia*: 13 km NW Baní. *Samaná*: Sánchez. *San Cristóbal*. *San Juan*: 16 km SE San Juan; 28 km E San Juan. PUERTO RICO: Aguirre; Fortuna A.E.S. *Humacao*: Vieques Island, Puerto Real. *Mayagüez*: Guánica Forest, Hwy 334 at Ranger Station. *Ponce*: Coamo Springs; Ponce.

Comments. Examination of the male genitalia is necessary to separate this species from other species in the *maculata* group. *Thyanta obsoleta* can be distinguished from other Northern Hemisphere species by its apically rounded parameres, which have the concave surface oriented more dorsad than mediad.

Thyanta (Argosoma) testacea (Dallas)
Figs. 198–212, Map 7

Pentatoma testacea Dallas, 1851:250; Walker, 1867:289.

Thyanta testacea: Stål, 1872:35; Berg, 1878:23, Lethierry and Severin, 1893:148; Kirkaldy, 1909:95.

Thyanta casta (of authors, not Stål): Uhler, 1893:705; Uhler, 1894b:174.

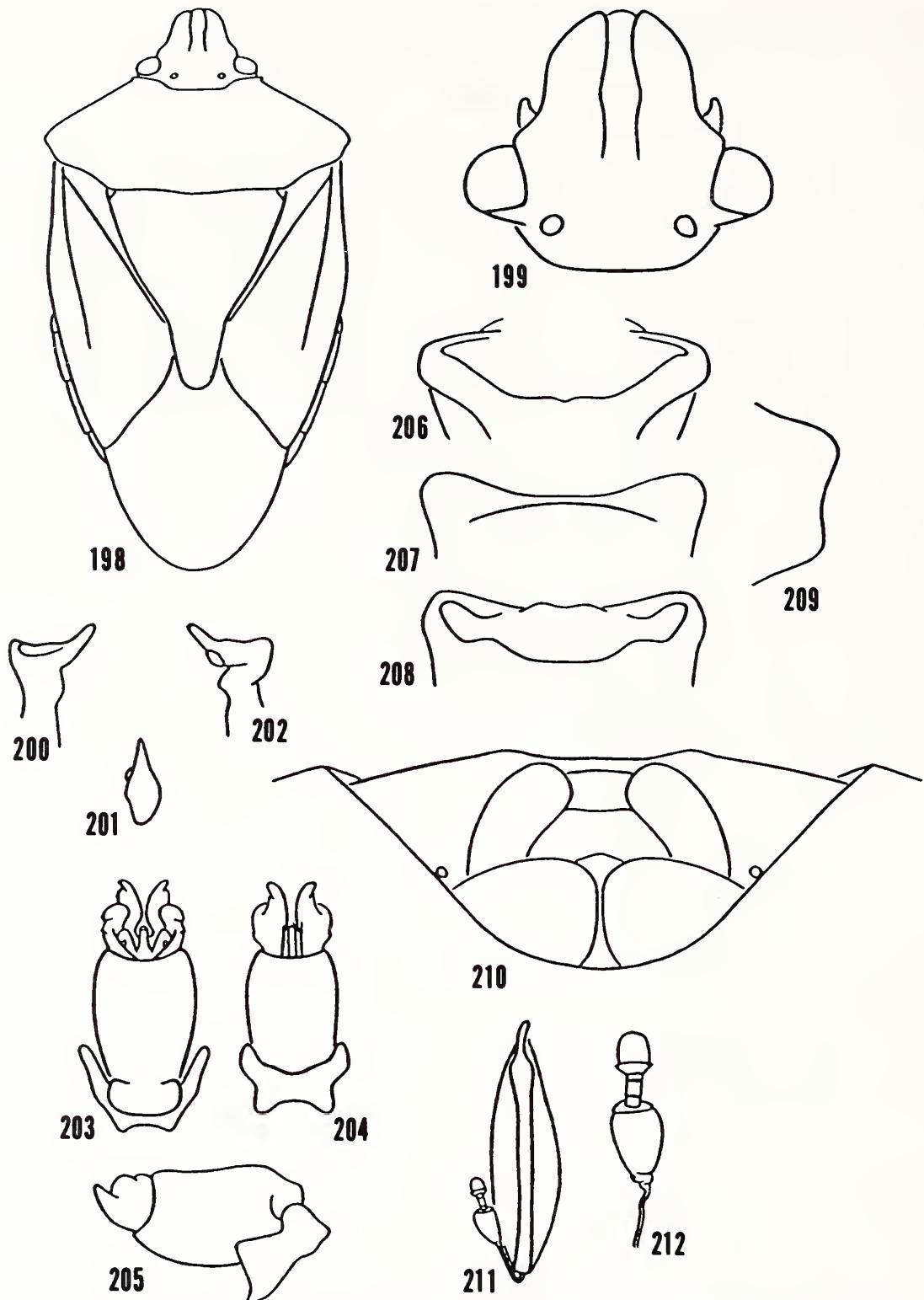
Thyanta signoreti Ruckes, 1956:65–66, fig. 7 (syn. by Rider and Chapin, 1991).

Thyanta (Argosoma) testacea: Rider and Chapin, 1991.

Diagnosis. General color green to brown, rarely with rubiginous transhumeral markings.

Lateral jugal margins subparallel for middle third of distance from eyes to apex (Fig. 199). Anterolateral pronotal margins straight to slightly concave; humeral angles angulate to rounded, usually produced beyond base of adjacent corium by about half width of eye (Fig. 198). Pronotal cicatrices immaculate. Ostiolar canals acuminate apically. Posterolateral abdominal angles not marked with black or only minutely so; postspiracular black spots usually absent, sometimes evident in brown form.

Basal plates in caudoventral view with mesial margins convex, separated basally; posterior margins convex (Fig. 210). Distal end of sclerotized rod slightly swollen subapically, narrowed apically (Fig. 211); spermathecal duct greatly swollen below proximal flange, carrot-shaped (Fig. 212). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 206); slightly concave in lateral view (Fig. 209). Each paramere apically acute in both medial and ectal views (Figs. 200, 201); concave surface oriented more dorsad than mediad; roughened spiculate area



Figs. 198–212. *T. testacea*. 198. Habitus. 199. Head. 200–202. Right paramere. 200. Medial view. 201. Ectal view. 202. Lateral view. 203–205. Theca and related structures. 203. Ventral view. 204. Dorsal view. 205. Lateral view. 206–209. Pygophore. 206. Caudal view. 207. Ventral view. 208. Dorsal view. 209. Lateral view. 210. Genital plates, caudoventral view. 211. Spermatheca. 212. Spermathecal pump.

on lateral surface circular (Fig. 202). Aedeagus with dorsomedial lobe apparently absent (Fig. 204).

Types. Dallas (1851) described *Pentotoma testacea* from "S. America" without designating a holotype or paratypes, and it is not possible to determine how many

syntypes he had. Rider and Chapin (1991) designated the only known ♀ syntype as lectotype. The lectotype, which is conserved in the British Museum of Natural History (London), was examined.

Distribution. Lesser Antilles and northern South America (Map 7).

Specimens examined. 250 specimens collected during every month of the year, deposited in AMNH, ARH, BMNH, CAS, CU, DBT, EGER, ENGL, INHS, LACM, LHR, LSU, MSUE, SMEK, TAMU, USNM. BRITISH VIRGIN ISLANDS: *Tortola Island*. U.S. VIRGIN ISLANDS: *St. Croix*: Canaan; Christiansted; E Hill; Experiment Station Grounds; Hams Bluff. *St. John*: Estate Carolina, NW of Coral Bay; Virgin Islands Natl Park. *St. Thomas*: Charlotte Amalie; Estate Lilliendahl; Frenchman's Bay. BRITISH WEST INDIES: *Anguilla*: N of Road Bay. *Antigua*: Coolidge; Coolidge airport. *Bequia*. *Dominica*: Antrim; Cabrit Swamp; Clarke Hall; Grande Savane; Macoucheri; Mero Beach; Salybia; Springfield Estate; S Chiltern. *Grenada*: Caliveny Estate; Grand Anse, St. Georges Parish; Granville; Mt Gay Estate; St. Georges; Santeurs. *Montserrat*: Galway's Estate; Plymouth. *St. Kitts*: W Farm Gut. *St. Lucia*: 1.5 mi N Canaries. *Tobago*: Bucco Bay; Grafton Estate. *Trinidad*: St. George Co., Curepe C.I.B.C. Union. FRENCH WEST INDIES: *Guadeloupe*: Sur Cotonnier. *Martinique*: Diamant; Sainte Anne. BARBADOS: Edge Hill; Freshwater Bay; Groves St. George. CURAÇAO.

Comments. *Thyanta testacea* is very closely related to the other species in the *maculata* group, and can be reliably identified only by examination of the male genitalia. The apically acute parameres curving gently dorsad will separate it from all congeners except *T. patruelis*, which it closely resembles. The chin-like protuberance on the posteroventral surface of the pygophore is somewhat less prominent in *T. testacea* than in *T. patruelis*. There does seem to be a geographical separation of the two forms with *T. testacea* restricted to northern South America and the Lesser Antilles, and *T. patruelis* occurring from northeastern Brazil and southern Peru southward.

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versity, Raleigh, C. Parron; NDSF—North Dakota State University, Fargo, E. U. Balsbaugh, Jr.; NMSU—New Mexico State University, Las Cruces, G. S. Forbes, J. R. Zimmerman; ODAS—Oregon Department of Agriculture, Salem, R. L. Westcott; OSU—Ohio State University, Columbus, C. A. Triplehorn; OSUC—Oregon State University, Corvallis, K. A. Phillips; POLH—University of Colorado, Polhemus collection, Englewood, J. T. Polhemus; PUL—Purdue University, West Lafayette, IN, A. V. Provonsha; SIUC—Southern Illinois University, Carbondale, J. E. McPherson; SMEK—Snow Museum of Entomology, University of Kansas, Lawrence, P. D. Ashlock; TAMU—Texas A&M University, College Station, J. C. Schaffner; UAT—University of Arizona, Tucson, F. G. Werner; UCB—Essig Museum of Entomology, University of California, Berkeley, J. A. Powell; UCR—University of California, Riverside, S. I. Frommer; UCS—University of Connecticut, Storrs, J. E. O'Donnell; UGA—University of Georgia, Athens, C. L. Smith; UIM—University of Idaho, Moscow, J. B. Johnson; UMAA—University of Michigan, Ann Arbor, B. M. O'Conner; UMC—University of Missouri, Columbia, R. L. Blinn, T. R. Yonke; UNAM—Instituto de Biología, Universidad Nacional Autónoma de Mexico, Mexico City, DF, H. Brailovsky; UNL—University of Nebraska, Lincoln, B. C. Ratcliffe; USNM—U.S. National Museum of Natural History, Washington, DC, R. C. Froeschner, T. J. Henry; UUSL—University of Utah, Salt Lake City, J. Loye; VPI—Virginia Polytechnic Institute and State University, Blacksburg, M. Kosztarab; WSU—Washington State University, Pullman, R. S. Zack.

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